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21世纪高职高专能力本位型系列规划教材·物流管理系列

集装箱检验与维修

CONTAINER INSPECTION AND REPAIR

(英汉双语教材)

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内 容 简 介

本书分为 4 个单元共 15 章，内容包括 Container Types and Design I；Container Types and Design II；Container Construction and Dimensions；Causes of Damage during Transport；Introduction to Container Inspection；Criteria for Repairworthy Damage and Wear；When and How Much to Repair；General Repair Methods and Principles；Inspection Procedure and Measurement Tools；Usual Method of Measuring Bends, Dents and/or Bows；“Space out/Measure back” Method of Measuring Bends, Dents and/or Bows；Method of Measuring Damage to Check ‘Envelope’ Limits；Criteria for Container Cleanliness；Cleaning Methods；Condition Photographs and Recommended Action；附录等。

本书可作为高职高专集装箱运输管理、国际航运业务管理、物流管理、港口业务管理、报关与国际货运、国际航运保险与公估等航运物流类专业的英汉双语教材，也可以作为验箱人员考取 IICL 国际验箱师从业资格的入门读物，同时也可以作为航运物流类专业本科生的专业英语阅读材料，具有广泛的适用性。

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前　　言

随着集装箱运输行业的飞速发展，社会对集装箱验箱人员的需求愈发迫切。而国际验箱师从业资格证需要通过由国际 13 大集装箱租箱公司联合组建的国际集装箱出租者协会(IICL)，每年在全世界 30 多个国家的 70 多个考试中心举办的国际集装箱验箱师全球统一考试获得。因此，在验箱领域中对既懂专业知识、又有专业外语能力的复合型人才的需求已越来越旺盛。目前中国已有数百位考生取得了“集装箱验箱师”资格，他们当前大多成为了租箱公司、船公司、集装箱堆场、集装箱码头、集装箱运输公司等机构的高级专职型技师。验箱师的薪酬待遇和职业发展空间大大优于行业中的其他职业，而国际验箱师从业资格证因其带来的高薪以及良好的就业前景正成为国际职业技术证书的一大亮点。高职高专教育的目标是培养适应生产、建设、管理、服务第一线需要的高等技术应用性专门人才。为了适应人才市场的新需求，高职高专亟待开设集装箱检验与维修双语课程。

开展双语课程教学面临的最大问题就是双语教材问题。近年来，国内一些培训机构引进和影印了 IICL 考试的全套原版教材，并给部分影印版教材配备了中文翻译，但在使用过程中普遍存在以下问题：首先，部分教材缺少中文翻译或注释，通篇的英文、繁多的专业词汇对学生的英语水平提出了较高要求，而实际上学生的英语水平有限，尤其是高职高专的学生，他们中有些人甚至到毕业都达不到高等学校英语应用能力考试水平，因此学习原版教材时存在较大的语言障碍，容易使学生对双语教学产生畏难心理；其次，现有的中文译本中存在不少误译；再次，全套原版教材共 8 本，受课程学时限制一般只能讲授不到二分之一的核心内容，而学生为一门课程要购买 4 本教材，加重了学生的经济负担。

因此，集装箱检验与维修双语课程建设亟待进行的第一步工作就是编写、出版对国内高职高专学生切实适用的双语教材，可以说，双语教材是决定双语教学成效的关键。在上海市教委项目的支持下，经过几年的努力，编者在 IICL 原版教材的基础上，结合目前集装箱运输行业的发展和双语教学的需要，补充德国保险业协会的集装箱手册(GDV Container Handbook)的部分内容，增加对生词、语言难点、相关语法的注释，编写了本书。

本书具有以下特点。

(1) 从 8 本原版教材中选择 4 本构建教材的核心内容，并对原版教材内容进行整合改编。首先，从符合我国教学实际需要的角度出发，根据高校教学的课时安排对原书内容进行了选择，选取那些对于从事验箱工作具有入门指南作用的内容，而舍弃了可以在工作实践中深入学习的部分。其次，考虑到国内高职学生的实际情况，补充了集装箱的类型、结构、运输中造成箱损的原因等与集装箱检验维修相关的内容。再次，进行适当的组织、调整、合理编排，形成课程内严密的逻辑衔接、章节内课文与阅读材料间有机的横向联系，以及全书章节与章节间系统的知识结构和体系。通过有机重整，改编后的全书共分 4 个单元：基础知识、集装箱尺寸检验与维修、集装箱损坏测量、集装箱清洁度检验与清洗。调整后的双语教材内容相对规整，既能反映原版教材风貌，又符合高职高专的教学特点，方便双语教学使用。

(2) 双语教材与专业英语教材有相似之处但也有差别：专业英语教材内容偏重于英语知识，即专业英语教材的主要目的是帮助学生掌握某一专业领域的语言特征，专业文献在其中只起到载体的作用；而双语教材更侧重于专业知识的系统性和完整性，即双语教材的主要功能是传递专业知识，而外语在其中主要起到载体的作用。因此，在专业英语教材中要注意生词、句型的编排逐步深入；而在双语教材中，大量的专业词汇放在较前面的章节集中讲授，有利于学生掌握课程内容。

(3) 每章开头增加英文导言，简略描述相关背景，从而提出正文中要阐述的问题，有利于吸引读者对章节内容产生兴趣，并起到提纲挈领的作用，引导学生在原有知识结构的基础上理解和掌握本章的教学重点。

(4) 章后增加词汇表、难句的中文注释，并对章内相关语法给出语法总结，力求使学习克服学习的语言障碍，方便学生查阅和自学。这种编写体例既可以让学生不完全依赖译文，又能很好地辅助他们理解课文内容；既保留了原版教材的特点，又兼顾了我国学生的实际英语水平。

(5) 章后附有针对专业知识技能的习题，亦有适量巩固专业词汇的练习，培养学生同时掌握集装箱检验与维修的实际技能和专业英语词汇，为进一步从事国际化的验箱工作打下基础。全书后配以 IICL 模拟测验题，可供学生自测检验学习效果。

(6) 每章后有一篇推荐的扩展阅读文献，介绍运输中造成箱损的机械应力、气候应力、货物的包装、栓固、集装箱的选择、配载、湿度控制等的基本原则、集装箱的新用途、报废集装箱再利用等与集装箱检验维修相关的内容。这些阅读材料都是从 2010 年以后出版的原版专业文献和网上的最新资料中选取的，内容新颖，有助于拓宽知识面、开阔眼界、加深对所学知识的理解、启迪思路的创新。

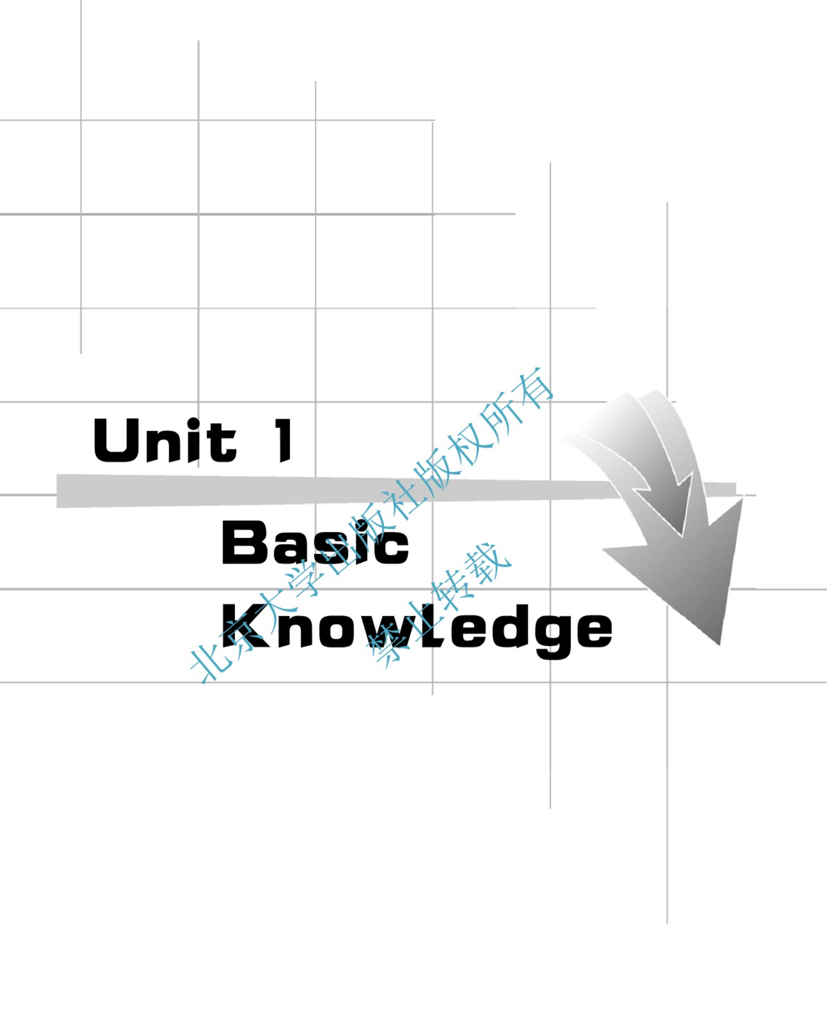
本书由林赞明和王学锋担任主编，钱浩军、胡良琼和孙鉴担任副主编，陈彭、万鸣担任主审。王学锋教授负责本书策划，并构建了全书的结构体例；各章具体内容由林赞明编写，同一作者编写避免内容、生词上的重复，在专业术语译名、表述方式等方面保证前后统一。胡良琼和上海远洋国际集装箱储运有限公司箱管部钱浩军对全书进行统稿，孙鉴校对了书中的英文部分。上海民远职业技术学院陈彭、上海远洋国际集装箱储运有限公司万鸣逐章审核了全书，并提出了许多宝贵的意见和建议。本书的编写得到了上海市教委的项目资助，并得到了上海民远职业技术学院校领导的大力支持。此外，在本书编写过程中，借鉴了大量英文出版物和网上资料，由于编写体例的限制，除补充阅读材料在正文中逐一注明以外，其他只在最后的参考文献中列出，在此一并表示真挚的感谢。

由于国际验箱师考试内容不断推陈出新且编者水平有限，书中难免存在疏漏之处，恳请各位专家及广大读者批评指正。

编　者

2015 年 6 月

目　录



Unit 1

Basic Knowledge

Chapter 1

Container Types and Design I



Container inspection requires a basic knowledge of the design of containers. There are various types of containers accommodating different needs: dry-van (closed), bulk, refrigerated, open-side, open-top, flatrack, tank, and others. This chapter copes with three of these seven common types.



Over 50 percent of the containers available internationally belong to shipping companies. Alongside these are a large number of leasing companies, which lease their containers both to shipowners and to direct customers. Specific details about the containers may in general be found in the brochures published by the respective companies. Of necessity, the following can only deal with a few common types of container.

According to ISO (International Standardization Organization) standards, a distinction may be drawn between the following types:

- General purpose containers
- Dry bulk containers/bulk containers
- Thermal containers
- Open-sided containers
- Open-top containers
- Platform containers
- Tank containers

Further distinctions are drawn within these groups depending on design and principal characteristics. A container user should be aware of the most important structural differences between container types, so that he/she is in a position to make appropriate preparations for packing and cargo securing and to correctly assess container loading capacity.

Over the years, expressions have become established which do not always correspond to the standards or which are used in addition to the standard expressions. Some of these need to be explained. The term standard container was used for the first containers in their basic form. As these were closed and were primarily suitable for the loading of general cargo, they were/are also known as general purpose containers, dry cargo containers or box containers. The initial height of 8' has already very nearly been consigned to history. Most box containers have an external height of 8'6". General purpose containers usually have an opening on one end(Fig.1.1).

Forty-foot containers have a larger volume-to-payload ratio than 20' containers, i.e. they are suitable for goods with a higher cargo stowage factor (Fig.1.2).



Fig.1.1 General purpose container of sheet steel



Fig.1.2 40' container

The expression high-cube container originally covered all containers higher than 8'6". The expression is now used in practice almost only ever for containers which have an external height of 9'6". The yellow and black marking on the top edges of the high-cube container serves as a warning

about its height. Particular attention needs to be given to possible height restrictions when these containers are carried by for road and rail. It may be necessary to use special chassis or carrying cars(Fig.1.3).

Dry bulk containers or bulk containers may be used to transport loose, free-flowing goods. Externally, normal bulk containers are of identical construction to standard containers except for the loading hatches and discharge outlets (Fig.1.4).



Fig.1.3 Comparison of a high-cube container (9'6") with an 8'6" container



Fig.1.4 Loading hatches and discharge outlets in a bulk container

The loading hatches or domes are arranged in the roof. The unloading hatches are normally at one of the ends, generally incorporated into the doors. Sometimes, short hoses are also incorporated, so as to be able to direct the cargo as it is unloaded. Less frequently, the discharge outlets are arranged at the side. In all the above cases, unpacking is achieved by the force of gravity, generally assisted by tipping the containers (Fig.1.5).



Fig.1.5 Chassis with tipping equipment for emptying bulk containers

To prevent contact between the cargo and the container walls, "inlets" or liner bags may be introduced into the containers and fixed in place. Reusable "inlets" are available, as well as single-use "inlets" or disposable liners. By fitting "inlets" or liner bags, normal general cargo containers may also be used as bulk containers (Fig.1.6).







Fig.1.6 "inlets" in a general purpose container, for transporting bulk cargo

Thermal containers are divided into refrigerated, refrigerated/heated and merely insulated types. A distinction is also drawn between those with fixed and removable equipment. Refrigerated/ heated containers allow goods to be transported irrespective of ambient temperature. The question of whether the container heats or refrigerates is relative. Nonetheless, the term refrigerated container or reefer has become established in common parlance. The correct term would be temperature-controlled container (Fig.1.7).



Fig.1.7 40'×9'6" thermal container, mechanically refrigerated/heated



Words and Expressions

shipping company			航运公司
alongside	[ə'lɒŋ'saɪd]	*prep.*	在……旁边
lease	[liːs]	*vt.*	出租
		n.	租约，租期
leasing company			租箱公司
shipowner	['ʃɪpəʊnə]	*n.*	船东
brochure	['brəʊʃə]	*n.*	手册
respective	[rɪ'spektɪv]	*adj.*	分别的，各自的
irrespective of			不论，不考虑，不顾
of necessity			必然地，不可避免地
standardization	[ˌstændədaɪ'zeɪʃən]		
		n.	标准化

ISO (International Standardization Organization)			国际标准化组织
distinction	[dɪs'tɪŋ(k)ʃ(ə)n]	*n.*	区别，差别
draw a distinction between sth.			区分
general purpose container			通用集装箱
bulk	[bʌlk]	*n.*	散装货物，散货
dry bulk container			干散货集装箱
bulk container			散货集装箱
thermal	['θɜːm(ə)l]	*adj.*	温度的，保温的
thermal container			保温集装箱
open-sided container			敞侧箱
open-top container			开/敞顶箱
platform	['plætfɔːm]	*n.*	平台
platform container			框架箱
tank	[tæŋk]	*n.*	(盛液体或气体的)大容器，罐
tank container			罐式箱
principal	['prɪnsəp(ə)l]	*adj.*	首要的，最重要的
pack	[pæk]	*v.*	包装，打包，装箱
cargo	['kɑːgəʊ]	*n.*	货物，船货
secure	[sɪ'kjʊə]	*v.*	栓固，(使)安全
		adj.	安全的，可靠的
cargo secure			货物栓固
assess	[ə'ses]	*vt.*	估价，评价，判断(人、物、工作等)
correspond to			符合于……
term	[təːm]	*n.*	术语
standard container			标准集装箱
primarily	['praɪm(ə)rəlɪ]	*adv.*	首先，主要地，根本上
dry cargo container			干货箱
box container			箱型集装箱
initial	[ɪ'nɪʃəl]	*adj.*	最初的
consign	[kən'saɪn]	*vt.*	移交
consign sth. to sth.			把……移交给……
sheet steel			钢板
volume	['vɒljuːm]	*n.*	容积，容量；数量，总额
payload	['peɪləʊd]	*n.*	装货重量
ratio	['reɪʃɪəʊ]	*n.*	比率，比例
volume-to-payload ratio			箱容系数
stowage	['stəʊɪdʒ]	*n.*	装载，积载
factor	['fæktə]	*n.*	因子，系数

cargo stowage factor 货物积载因素
cube [kjuːb] *n.* 立方体，容积
high-cube container 高箱
restriction [rɪ'strɪkʃ(ə)n] *n.* 限制，约束
chassis ['ʃæsɪ] *n.* 底盘车
carrying car 货运车
comparison [kəm'pærɪs(ə)n] *n.* 比较
identical [aɪ'dentɪk(ə)l] *adj.* 同一的，完全相同的
construction [kən'strʌkʃ(ə)n] *n.* 构造
hatch [hætʃ] *n.* 开口
loading hatch 装货口
discharge [dɪs'tʃɑːdʒ] *vt.* 卸货
outlet ['aʊtlet] *n.* 出口
discharge outlet 卸货口
dome [dəʊm] *n.* 穹顶，装货顶
loading dome 装货顶
unloading hatch 卸货口
incorporate [ɪn'kɔːpəreɪt] *vt.* 包含，使并入
hose [həʊz] *n.* 软管
gravity ['grævɪtɪ] *n.* 重力
tip [tɪp] *v.* (使)倾斜，(使)倾侧
inlet ['ɪnlet] *n.* 插入物，衬垫
liner ['laɪnə] *n.* 衬里，班轮
liner bag 衬袋
disposable [dɪs'pəʊzəb(ə)l] *adj.* 可处理的，一次性使用的
refrigerate [rɪ'frɪdʒəreɪt] *vt.* 冷藏
insulate ['ɪnsjʊleɪt] *vt.* 使隔热
fixed [fɪkst] *adj.* 固定的
removable [rɪ'muːvəbl] *adj.* 可移动的，可拆装的，可除掉的
ambient ['æmbɪənt] *adj.* 周围的，外界的
nonetheless [nʌnðə'les] *adv.* 尽管如此，但是
refrigerated container 冷藏箱
reefer ['riːfə] *n.* 冰箱，冷藏箱
parlance ['pɑːl(ə)ns] *n.* 说法，用语
in common parlance 俗话说，照一般说法
temperature-controlled container 温控箱
mechanical [mɪ'kænɪk(ə)l] *adj.* 机械的，用机器的



Notes

1. 实践中通常把 20 英尺和 40 英尺干货箱称为普通箱，其他各类集装箱(包括高箱)统称为特种箱。
2. 目前国内运输高箱普遍使用普通的底盘车。
3. 实践中运输散货一般使用干货箱，除非货主有特殊要求才使用特制的散货箱。
4. Alongside these are a large number of leasing companies, which lease their containers both to shipowners and to direct customers. 此外还有大量的租箱公司向船东和货主出租集装箱。

句子的主语是 a large number of leasing companies, which lease their containers both to shipowners and to direct customers，主语较长，为了避免头重脚轻，采取完全倒装，将作表语的介词短语 alongside these 置于句首。倒装用法详见本章语法部分。

5. A container user should be aware of the most important structural differences between container types, so that he/she is in a position to make appropriate preparations for packing and cargo securing and to correctly assess container loading capacity. 集装箱用户应该了解集装箱类型之间最重要的结构区别，才能为装箱和货物栓固做适当准备并正确评估集装箱的装载能力。

be in a position to do sth. 结构中，两个动词不定式短语 to make appropriate preparations for packing and cargo securing 和 to correctly assess container loading capacity 放在 position 之后作定语，表示“能够做……和……”。不定式用法详见第 5 章语法部分。

6. The loading hatches or domes are arranged in the roof. The unloading hatches are normally at one of the ends, generally incorporated into the doors. 装货口或装货顶安装在箱顶。卸货口通常在一端，一般嵌在门里。

动名词 loading、unloading 作定语修饰 hatches，表示 hatches 的用途。动名词用法详见第 6 章语法部分，动名词和现在分词作定语的区别详见第 7 章语法部分。

7. Sometimes, short hoses are also incorporated, so as to be able to direct the cargo as it is unloaded. 有时候也包含短软管，以便能够在卸货时引导货物。

as 引导的时间状语从句动作与主句动作同时发生，强调同时性。状语从句的用法详见第 15 章语法部分。

8. Refrigerated/heated containers allow goods to be transported irrespective of ambient temperature. 冷藏/加热箱使货物可以在各种外界温度下进行运输。

动词 allow 后面有宾语时接不定式 to do 作宾补；后面无宾语时接动名词 doing 作宾语，动名词 doing 前面可以带自己的逻辑主语。allow 等动词的用法详见第 6 章语法部分。



Exercises

I. 用中文或英文回答问题

1．集装箱可以分为哪些类型？



2．通用集装箱还有哪些名称？

3．大多数箱型集装箱外部高度是多少？

4．现在的高箱有多高？外观上有什么标志？

5．散货箱在构造上与干货箱有什么不同？

6．散货箱里为什么要放衬垫或者衬袋？

7．散货箱怎样卸货？

8．在实践中保温箱主要称呼是什么？

II. 英译汉

1．shipping company

2．leasing company

3．shipowner

4．loading hatch

5．discharge outlet

6．reusable inlet

7．disposable liner bag

8．ambient temperature

III. 汉译英

1．干货箱(列举其不同英文名称)

2．高箱

3．散货箱(列举其不同英文名称)

4．冷藏箱(列举其不同英文名称)

5．箱容系数

6．积载因素

Grammar Concerned

倒装

完全倒装

一、如果一个句子的主语较长，为了避免头重脚轻，可采取完全倒装，将作表语或状语的介词短语置于句首。

(1) Alongside these are a large number of leasing companies, which lease their containers both to shipowners and to direct customers. 此外有大量租箱公司向船东和货主出租集装箱。

(2) Inside the pyramids are the burial rooms for the kings and queens and long passages to these rooms. 金字塔里面是国王和王后们的墓穴和通往墓穴的长通道。

相似地，“主语+be +分词(doing / done)”结构，为了句子平衡、避免头重脚轻，实行倒装，形成“分词(Doing / Done)+状语+be+主语”的结构。

(1) Gone forever are the days when we Chinese people used foreign oil. 中国人用外国油的日子一去不复返了。

(2) Walking above the crowded streets on top of a building ten storeys high was Philippe Petit. 菲力浦·珀蒂在拥挤的大街上空、在10层楼高的建筑物顶部行走。

二、倒装还可用在强调表语或状语的句子中，把表语或状语提到主语前。

(1) Great have been our achievements since 1978. 1978年以来我们取得的成就是伟大的。

(2) Thus was the Emperor deceived. 皇帝就这样受骗了。

但如果主语是代词，且无较长的修饰语，即便表语提前也不倒装。

(1) Terribly hot it certainly was. 天确实是太热了。

(2) A very reliable person he is. 他是一个可靠的人。

三、there be 句型完全倒装。

(1) There are various types of containers to meet different needs. 各种类型的集装箱可以满足不同的需要。

(2) There happened to be a taxi parked at the gate. 碰巧门口停着一辆出租车。

推而广之，以表示方位的副词 here, there, in, out, up, down, off, away 等开头的句子，完全倒装。

(1) Here is a letter for you. 这儿有你一封信。

(2) There once lived a pack of wolves in this cave. 在这个洞里曾经住过一群狼。

(3) In rushed a stranger. 一个陌生人冲了进来。

(4) Out went the children. 孩子们出去了。

(5) Up went the rocket into the air. 火箭上了天。

(6) Down came the rain. 下起大雨来了。

(7) Away flew the birds. 鸟儿飞走了。



但当主语为人称代词时不用倒装。

(1) There he comes. 他来了。

(2) Here it is. 这就是。

(3) Back they came. 他们回来了。

四、以 now, then 开头的句子完全倒装。

(1) Now comes your turn. 该轮到你了。

(2) Then followed three days of heavy rain. 后来连着下了三天大雨。

但当主语为人称代词时不用倒装。

不完全倒装

一、以 often, always, once, many a time, now and then, every other day, every two hours 等开头的句子，不完全倒装。

(1) Often did we warn them not to do it. 我们经常警告他们别做这事。

(2) Many a time has he helped me with my experiment. 他不止一次帮我做实验。

二、以 never, hardly, scarcely, rarely, barely, seldom, little, nowhere, no longer, not until, hardly…when, no sooner…than, at no time, under no circumstances, by no means 等表示否定或半否定意义的副词或介词短语开头的句子，不完全倒装。

(1) Never have I come across such a difficult problem. 我还从没有遇到过这样困难的问题。

(2) Hardly did I think it possible. 我想这几乎不可能。

(3) Very seldom do you find that two clocks or watches exactly agree. 你很难发现两个钟或表的时间完全一样。

(4) Not until many years later did I know the whole truth. 直到多年以后，我才知道了全部真相。

(5) Hardly had he arrived home when his wife started complaining. 他刚到家，他的妻子就抱怨起来。

(6) No sooner had he finished his talk than a man stood up and put a question to him. 他的讲话刚结束，就有人站起来向他提出一个问题。

(7) At no time will China first use nuclear weapons. 在任何时候中国决不会首先使用核武器。

(8) By no means will this method produce satisfactory results. 这种方法决不会产生令人满意的结果。

三、由并列连词 not only…but also…连接的句子，若 not only 放在句首，则 not only 所在的句子部分倒装，but also 连接的句子用正常语序。

(1) Not only should we not be afraid of difficulties, but we should try our best to overcome them. 我们不但应该不怕困难，而且要尽最大努力克服困难。

(2) Not only is he industrious, but he is also imaginative. 他不但勤奋，而且富有想象力。

四、以“only+状语”开头的句子不完全倒装。

(1) Only then did I realize that I was wrong. 到那时我才意识到我错了。

(2) Only after bitter negotiations was the contract signed. 只有在艰苦的谈判以后，合同才得以签署。

(3) Only when you have read the book, can you answer these questions. 只有读了这本书，你才能回答这些问题。

五、so…that…和 such…that…结构中的 so *adj.*/*adv.*或 such + *n.*位于句首，句子不完全倒装。

(1) So fast does light travel that it is difficult for us to imagine its speed. 光的传播太快了，我们很难想象它的速度。

(2) Such a bad accident was it that many people were killed. 车祸很严重，死了很多人。

六、以 so 开头的句子，用于表示前面所说的肯定情况也适用于其他人或物，不完全倒装。

(1) Production is going up, so is the people's standard of living. 生产不断发展，人们的生活水平也一样。

(2) Society has changed and so have the people in it. 社会变了，社会上的人也变了。

so 在句首，若只是对对方所陈述的内容表示肯定，则不用倒装。

(1) —Tomorrow will be Monday. —So it will. ——明天星期一。——对。

(2) —He works very hard. —So he does. ——他工作很努力。——是的。

七、以 neither/nor 开头的句子，用于表示前面所说的否定情况也适用于其他人或物，不完全倒装。

(1) The first one wasn't good and neither was the second. 第一个不好，第二个也不好。

(2) I know nothing about it, nor do I care. 关于这件事我是一无所知，对此也无兴趣。

八、as 引导让步状语从句应将表语、状语或谓语移到句首。

(1) Pilots as he claims he is, no one has ever seen him fly a plane. 尽管他声称是个飞行员，但谁也没见过他开飞机。

(2) Bravely as they fought, they had no chance of winning. 他们虽然作战勇敢，但没有可能取胜。

(3) Try as you will, you won't be able to persuade him. 虽然你可以尝试，但你不可能说服他。

九、表示祝愿的句子较常见的两种情况都倒装。

(1) 动词原形 live 用在 Long live…中。

Long live the friendship among the Asian people and sportsmen! 亚洲各族人民和运动员之间的友谊万岁！

(2) May 用在句子开头。

May you return safe and sound. 祝你平安归来！

十、在直接引语后注明引语是什么人所说的句子里，主语是名词时，常用倒装结构；主语是代词时，往往不用倒装结构。

(1) "You all did well in the exam," said the teacher. "你们大家考得都很好。"老师说。

(2) "Who are you looking for?" she asked. "你找谁？"她问道。

Extended Reading

The History of Containers

In May 2001, Malcolm P. McLean (Fig.1.8), the "father of Containerization", died aged 87. He used to say that he had the idea of rationalizing goods transport by avoiding the constant loading and unloading from one means of transport to another way back at the end of the 1930s at the port



of Hoboken, when still operating as a small-scale hauler. To start with, McLean would load complete trucks onto ships, in order to transport them as close as possible to their destination. The development of standardized containers and trailers, moved by tractors, made it possible to ship just the trailers with the containers, so saving space and costs. Later, the trailers were also left behind and the ships transported just the containers.



Fig.1.8 Malcolm P. McLean

Shipowners were more than a little skeptical about McLean's idea. This prompted him to become a shipowner himself and he appropriately named his company Sea-Land Inc.. At the end of the 1990s, McLean sold his company to the Maersk shipping company, but his company name lives on in the name Maersk Sealand.

In the literature, the "Ideal X", a converted tanker, is mentioned as the first container freighter. This ship left Newark on 26th April 1956 carrying fifty-eight containers as deck cargo, which is transported to Houston. Another decade passed before the first container ship moored in Europe. Shipowners in Europe and Japan quickly recognized the advantages of the container and also invested in the new transport technology.

Since American standards could only be applied with difficulty to conditions in Europe and other countries, an agreement was eventually reached with the Americans after painstaking negotiations. The resulting ISO standards provided for lengths of 10', 20', 30' and 40'. The width was fixed at 8' and the height at 8' and 8'6". The majority of containers used worldwide today comply with the ISO standard, with 20'-long and 40'-long containers predominating.

For some years, the ISO standard has come repeatedly under pressure. As stowage factors increase for most goods, many forwarders want longer, wider and higher containers, preferably all at once. Some shipowners have given in to the pressure, and containers of dimensions larger than provided for by the ISO standard are now encountered distinctly more frequently especially in the USA, while in Europe and on other continents, narrower roads are a limiting factor, and developing countries are understandably against changing the standards.



Words and Expressions

containerization	[kənˌteɪnəraɪ'zeɪʃən]	*n.*	集装箱化，集装箱运输法
rationalize	['ræʃənəlaɪz]	*vt.*	使合理，使合理化
constant	['kɒnst(ə)nt]	*adj.*	连续发生的，经常的
scale	[skeɪl]	*n.*	规模，大小；标尺，刻度尺
hauler	['hɔ:lə]	*n.*	运输人(尤指运输业者)
truck	[trʌk]	*n.*	卡车，货车
destination	[ˌdestɪ'neɪʃən]	*n.*	终点，目的地
standardize	['stændədaɪz]	*vt.*	使合乎标准，使标准化
trailer	['treɪlə]	*n.*	拖车，挂车
tractor	['træktə]	*n.*	牵引车
leave behind			把……丢在后面，超过
skeptical	['skeptɪkəl]	*adj.*	怀疑的
be skeptical about sth.			怀疑某事物
prompt	[prɒm(p)t]	*vt.*	促使，推进，激励，鼓舞
		adj.	迅速的，立刻的
appropriate	[ə'prəʊprɪeɪt]	*adj.*	适宜的，适当的，恰当的
Inc.	[iŋk]	*abbr.*	(incorporated)股份有限公司
literature	['lɪt(ə)rətʃə]	*n.*	[总称](某一专题)文献，图书资料
convert	[kən'və:t]	*vt.*	改建，改造，改装
tanker	['tæŋkə]	*n.*	油轮，油船
freighter	['freɪtə]	*n.*	[水运][船]货船，承运人
deck	[dek]	*n.*	甲板，舱面
moor	[mʊə]	*vi.*	停泊，系泊，系留
invest	[ɪn'vest]	*v.*	投资
painstaking	['peɪnzteɪkɪŋ]	*adj.*	费力的，艰苦的
negotiation	[nɪgəʊʃɪ'eɪʃ(ə)n]	*n.*	[常用复数]谈判，磋商，交涉，会谈
provide for			(法律、条文等)规定
comply with			遵守，遵从
predominate	[prɪ'dɒmɪneɪt]	*vi.*	(数量、力量等)占优势，胜过
come under			遭受
forwarder	['fɔ:wədə]	*n.*	货运代理
preferably	['prefərəblɪ]	*adv.*	更可取地，较合意地
all at once			同时一起，一下子
encounter	[ɪn'kaʊntə]	*vt.*	(意外地)遇到
distinctly	[dɪs'tɪŋ(k)tlɪ]	*adv.*	清楚地，明显地

Chapter 2

Container Types and Design II



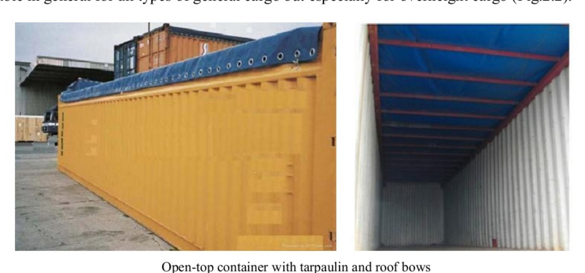
Three of the seven common types of containers have been mentioned in last chapter. This chapter covers the rest four types, which are categorized according to their shapes.

Open-sided containers (OS) have solid end walls and a solid roof panel. Roof bow holders and roof bows are provided for the upper part, which may be covered with tarpaulins. The container is packed from the side. Open-sided containers also exist which are open only on one side. If bars are positioned over one open side, the containers can be used for transporting livestock. Another variant is the "folding side wall" container, a type of inland container. The sides may be closed at the bottom by folding down wooden, aluminum profile or steel sheet side walls, which may be divided into sections. Open-sided containers are also available with doors at the rear of the container (Fig.2.1).



Fig.2.1 Open-sided container with end wall door

Open-top containers have doors at least at the rear and their roofs are openable or removable. The roof covering consists either of a tarpaulin supported by roof bows or a solid, fully removable hard-top. Containers with the latter type of roof covering are known as hard-top open-top containers. Since their roofs are openable, open-top containers may also be packed from above. They are suitable in general for all types of general cargo but especially for overheight cargo (Fig.2.2).



Open-top container with tarpaulin and roof bows

Fig 2.2 Open-top containers





Hard-top open-top containers



Open-top container with top member removed

Fig 2.2 Open-top containers (续)

Platforms and flatracks are also known in common parlance as open containers. Platforms consist of reinforced container floors with sheet steel or planking. A large number of lashing points are provided for cargo securing; these may be lashing lugs or rings or lashing bars attached to the outsides of the side rails. Although such containers may have special equipment, such as stanchions, fold-down end walls, lashing equipment etc., they are often described in specialist literature as containers without additional equipment (Fig.2.3).

Tank containers are provided for carrying liquids and gases. The characteristics of the substances to be carried determine the material of which the tank is made, while the pressure under which the cargo has to be transported influences its construction. Tank containers almost always have a steel frame as their basis, into which tanks of various shapes may be inserted. Various fittings and accessories are incorporated, depending on type and method of filling and emptying. They may be filled via domes or tubes and emptied downwards via floor drains or upwards via riser pipes and pressure generators or in any other suitable manner. Temperature-controlled tank containers require special heating or cooling devices.

The products to be carried may be any types of liquid, liquefied or gaseous substance, ranging from harmless to very dangerous (Fig.2.4).



Fig.2.3 Platform: 20' long and 8' wide



Fig.2.4 Tank container for non-dangerous liquids

Tank containers intended for liquid foodstuffs must be clearly marked as being intended for this purpose.

Potable liquids only

It's required that tank containers for carrying dangerous liquids be subject, among other things, to the regulations governing the carriage of dangerous goods and they may also have to be tested for compliance with the regulations of relevant state departments (Fig.2.5).





Fig.2.5 Tank container for carrying dangerous goods

Tank containers must be at least 80% full for safety reasons, so as to prevent dangerous surging of the liquids in transit. As a rule of thumb, they should not be filled more than 95% full, so as to allow for thermal expansion of the contents.

Tank containers may be replaced by introducing "flexible tubes" into standard containers, so turning them into temporary tank containers. However, a major problem associated with this is surging of the liquids, which may result in damage to the container walls.

Words and Expressions

end wall			端壁
roof panel			顶板
roof bow			箱顶拱梁
roof bow holder			拱梁支座
tarpaulin	[tɑː'pɔːlɪn]	*n.*	雨布
bar	[bɑː]	*n.*	栅，栏
livestock	['laɪvstɒk]	*n.*	[总称]家畜；牲畜
variant	['veərɪənt]	*n.*	变体，变形
inland	['ɪnlənd]	*adj.*	内陆的
fold	[fəʊld]	*vt.*	折叠，合拢
aluminum	[ə'luːmɪnəm]	*n.*	铝
profile	['prəʊfaɪl]	*n.*	外形，型材(条)
section	['sekʃ(ə)n]	*n.*	部分，段
rear	[rɪə]	*n.*	后面，后部，后端
consist of			由……构成
hard-top	['hɑːdtɔp]	*n.*	硬顶

hard-top open-top container			硬顶敞顶箱
flatrack			框架箱
reinforce	[riːɪn'fɔːs]	*v.*	加强，加固
plank	[plæŋk]	*n.*	板(条)；厚板
		vt.	在……上铺板
planking	['plæŋkɪŋ]	*n.*	铺板，板材
lash	[læʃ]	*vt.*	(用绳索、链、带等)扎紧，系牢
lug	[lʌg]	*n.*	(用作柄或把手的)耳状物
ring	[rɪŋ]	*n.*	环状物，金属环
attach	[ə'tætʃ]	*vt.*	拴，装；连接
side rail			侧梁
stanchion	['stænʃ(ə)n]	*n.*	支柱，柱子
specialist	['speʃ(ə)lɪst]	*adj.*	专业的；专科的
container without additional equipment			无附加设备的集装箱
characteristic	[kærəktə'rɪstɪk]	*n.*	特征，特色，特性
substance	['sʌbst(ə)ns]	*n.*	物质
frame	[freɪm]	*n.*	构架，骨架，框架
insert	[ɪn'sə:t]	*vt.*	插入；嵌入
fitting	['fɪtɪŋ]	*n.*	[机械学]零件，附件；装配，调整
accessory	[ək'sesərɪ]	*n.*	配件，零件；附带设备，附属部件
drain	[dreɪn]	*n.*	排水管，排水器，排水物
liquefy	['lɪkwɪfaɪ]	*v.*	使液化；变成液体
gaseous	['gæsɪəs]	*adj.*	气态的，气体状态的
foodstuff	['fu:dstʌf]	*n.*	食料，食品；粮食
potable	['pəʊtəb(ə)l]	*adj.*	可饮的；适合饮用的
be subject to			受支配，服从
regulation	[ˌregjʊ'leɪʃ(ə)n]	*n.*	调节，控制；规则，条例
compliance	[kəm'plaɪəns]	*n.*	依从，顺从，遵从
compliance with			遵守，符合
surge	[sɜ:dʒ]	*vi.*	浪涌
transit	['trænsɪt]	*n.*	运输，运送
rule of thumb			(根据实践或经验总结的)经验法则
allow for			把……考虑进去，为……留有余地
expansion	[ɪk'spænʃ(ə)n]	*n.*	膨胀
content	['kɒntent]	*n.*	[通常用复数]容纳的东西；含量
flexible	['fleksɪb(ə)l]	*adj.*	易弯(曲)的，柔韧的，可弯曲的
temporary	['temp(ə)rərɪ]	*adj.*	暂时的，临时的，一时的
associate	[ə'səʊʃɪeɪt]	*v.*	联系，联合；结交
be associated with			和……联系在一起；与……有关



Notes

1. 目前敞顶箱的箱顶覆盖基本都是由雨布构成，也就是说基本已不使用硬顶敞顶箱。
2. 敞顶箱通常只用于超高货物及装卸时需要从顶部吊装的特殊货物。
3. Open-sided containers also exist which are open only on one side. 也有仅一侧敞开的敞侧箱。

定语从句 which are open only on one side 较主句长，为了保持句子平衡将其移至句末。定语从句的用法详见第 14 章语法部分。

4. Although such containers may have special equipment, such as stanchions, fold-down end walls, lashing equipment etc., they are often described in specialist literature as containers without additional equipment. 虽然这种集装箱可能有专门设备，譬如支柱、下折端壁，绑扎设备等，但是专业文献中常常把它们称为无附加设备的集装箱。

although 或 though 表示“虽然，尽管”，引导让步状语从句，陈述基本事实。其中 although 比较正式、语气重，通常置于句首。状语从句的用法详见第 15 章语法部分。

5. The characteristics of the substances to be carried determine the material of which the tank is made, while the pressure under which the cargo has to be transported influences its construction. 所运载物质的特性决定罐式箱的制造材料，运输压力影响罐式箱的结构。

动词不定式短语 to be carried 作定语，放在被修饰的名词 substances 之后，表示将要发生的动作。定语从句 which the cargo has to be transported 作介词 under 的宾语，当关系代词在介词后面，只能用 which 不能用 that，也不能省略。不定式的用法详见第 5 章语法部分。定语从句的用法详见第 14 章语法部分。

6. Tank containers almost always have a steel frame as their basis, into which tanks of various shapes may be inserted. 罐式箱几乎都由钢制框架作为基座，框架中可以安装各种形状的罐箱。

非限定性定语从句的关系代词用 which 不用 that。定语从句的用法详见第 14 章语法部分。

7. It's required that tank containers for carrying dangerous liquids be subject, among other things, to the regulations governing the carriage of dangerous goods and they may also have to be tested for compliance with the regulations of relevant state departments. 运载危险液体的集装箱在服从其他规则的同时，必须服从管理危险货物运输的规则，也可能要接受测试，以便判断其是否符合国家相关部门规定。

表示建议、要求、命令等意思的动词 require 在 It is required that…句型中，that 之后的主语从句用虚拟语气，即谓语动词用 should+动词原形，should 可以省略，但引导词 that 不能省略。虚拟语气用法详见本章语法部分。



Exercises

I. 用中文或英文回答问题

1．敞侧箱怎样装箱？



2．什么样的敞侧箱可以用来运输牲畜？

3．敞顶箱适合装运怎样的货物？

4．敞顶箱可以怎样覆盖顶部？

5．框架箱有哪些附加设备？

6．罐式箱的制造材料由什么决定？

7．罐式箱可以怎样注满和排空？

8．罐式箱内盛的液量有什么要求？为什么？

II. 英译汉

1．end wall

2．roof panel

3．roof bow

4．roof bow holder

5．side rail

6．specialist literature

III. 汉译英

1．敞侧箱

2．敞顶箱

3．框架箱(列举其不同英文名称)

4．货物栓固

5．绑扎设备

6．罐式箱

Grammar Concerned

虚拟语气

一、表示建议、要求、命令等意思的动词，如 advise, arrange, command, demand, desire, insist, order, propose, request, require, suggest, beg, move(提议)等后面的宾语从句，用 should+动词原形，should 可以省略，而引导宾语从句的 that 不能省略。

(1) They require that the damage (should) not pass beyond certain limits defined by ISO. 他们要求损坏不超出 ISO 规定的某些极限。

(2) The commander ordered that the bridge (should) be bombed. 指挥官命令炸桥。

suggest 表示“暗示”时，宾语从句不用虚拟语气。insist 后面强调的是事实时，宾语从句也不用虚拟语气。

(1) He suggested that he was right. 他暗示自己是对的。

(2) Mike insisted that he had never stolen anything. 迈克坚持说自己从没偷过任何东西。

二、上述动词在 It is suggested that…, It is required that…, It's requested that…, It's ordered that…, It's arranged that…句型中，that 之后的从句用虚拟语气，即谓语动词用 should+动词原形，should 可以省略，但引导词 that 不能省略。

(1) It's required that tank containers for carrying dangerous liquids be subject, among other things, to the regulations governing the carriage of dangerous goods. 运载危险液体的集装箱在服从其他规则同时，必须服从管理危险货物运输的规则。

(2) It was suggested that he attend the conference. 有人建议他与会。

三、上述表示建议、要求、命令等意思的动词派生的名词后的同位语从句或表语从句中，用 should＋动词原形，should 可以省略，从句的引导词 that 不能省略。

(1) He made a request that he (should) be allowed to take 3 days off. 他要求准他 3 天假。

(2) Our suggestion is that education not be industrialized. 我们的提议是教育不应产业化。

四、在 It's important (advisable, better, desirable, essential, imperative, natural, necessary, strange, vital) that…句型中，that 引导的主语从句用 should +动词原形，should 可以省略。

(1) It is important that the inspector report to the owner instances of unusual damage or wear defects and any non-conforming repairs. 验箱员发现非同寻常的损坏及磨蚀缺陷及任何不合格修理后，要向箱主报告，这是非常重要的。

(2) It is essential that you (should) win the voter's hearts. 赢得选民的心是绝对必要的。

五、for fear that, lest 或 in case 引导的状语从句中用 should +动词原形，should 可省略。

(1) She closed the windows for fear that she (should) catch cold. 她关了窗户以免感冒。

(2) Lest the wall should collapse, they evacuated from the building. 恐怕墙会倒塌，他们从楼里撤了出来。

六、It is (high) time (that)…句型意思是“(现在)该……”，后面的定语从句用 should+动词原形，should 不能省略，或用过去式(be 的过去式用 were)。

(1) It is high time that I should lose some weight. 我该减点肥了。



(2) It is time we summed up our results. 我们该总结我们的成绩了。

七、动词 wish 后的宾语从句表示与客观事实相反的愿望或很难实现的愿望。

1．愿望与现在事实相反，从句谓语动词用 were 或 did。

(1) I wish it were autumn in Beijing all the year round. 但愿北京整年是秋天。

(2) She wished she knew how to play golf. 她但愿会打高尔夫球。

2．愿望与过去事实相反，从句谓语动词用 had done。

(1) We wish you had come to our New Year's party. 我们真希望你来参加我们的新年联欢会。

(2) I wished I hadn't been so forgetful. 我要是不这样忘事就好了。

3．愿望将来不大可能发生，从句谓语动词用 would/could/might do。

(1) I wish that it would be fine tomorrow. 但愿明天是个好天气。

(2) We wish you would spend the winter vacation with us. 真希望你同我们一起过寒假。

wish 与 hope 接宾语从句的区别在于 hope 表示一般可以实现的希望，宾语从句用陈述语气；wish 表示很难或不大可能实现的愿望，宾语从句用虚拟语气。

(1) We hope we will succeed. 我们希望能成功。(不知道能不能成功)

(2) We wish we would succeed. 我们也希望能成功。(知道难以成功)

八、if only 引导的感叹句表示与客观事实相反的愿望或不能实现的愿望。

1．愿望与现在事实相反，从句谓语动词用 were 或 did。

(1) If only I were ten years younger! 我要是能年轻 10 岁该多好啊!

(2) If only I could help you! 假如我能帮助你，那该是多好啊!

2．愿望与过去事实相反，从句谓语动词用 had done。

(1) If only I had taken his advice! 要是我听了他的建议就好了！

(2) If only I had not been ill yesterday. 昨天我要是不生病那该多好啊。

3．愿望将来不大可能发生，从句谓语动词用 would/could/might do。

(1) If only it would be fine tomorrow. 但愿明天是个好天气。

(2) If only you would try harder! 你如再努力一试就好了！

九、I would rather (that)…句型的意思是“我宁可……”，表示说话人的意愿，后面的从句的谓语动词用过去式(be 的过去式用 were)。

(1) I'd rather you did not tell him. 我宁可你不告诉他。

(2) I'd rather I were in the rain now. 我宁愿在淋雨。

十、suppose 开头的祈使句意思是“假如……”，但 suppose 是动词，不是连词。虚拟形式看假设动作发生的时间，与主句的时态没有关系。

1．如果句中表示的动作发生在过去，则谓语动词用 had＋过去分词形式。

Suppose Saddam had not been captured. What would the U.S. do? 假如没有抓住萨达姆，美国会做什么呢？

2．如果指的是现在的状况，则用过去式(be 用 were)。

Suppose the boss walked in. What should I do? 假如老板现在进来，我该干什么呢？

3．指将来则用 would(should, could)+动词原形。

Suppose Chen Shui-bian should declare Taiwan independent. What would China do? 假如陈水扁宣布台独，中国会怎么做呢？

十一、as if/as though 引导的状语从句，虚拟形式看从句动作发生的时间，与主句的时态

没有关系：

1．如果从句中表示的动作发生在过去，则谓语动词用 had＋过去分词形式。

You speak as if you had really been there. 你说得好像你真的到过那里似的。

2．如果指的是现在的状况，则用过去式(be 用 were)。

When a pencil is partly in a glass of water, it looks as if it were broken. 铅笔半截浸在一杯水里，看上去就像折断的一样。

3．指将来则用 would(should, could)+动词原形。

He always sounds as if he would help you. 他的话听起来总好像他会帮你。

十二、if 引导的非真实条件状语从句中的虚拟语气是用来表示一个与事实相反的假设或主观愿望。

1．与现在事实相反的假设，条件状语从句的谓语动词用过去式(be 的过去式用 were)，而主句中的谓语动词用 would (should, could, might)+动词原形。

(1) If they didn't take physical exercises every day, they wouldn't be so healthy. 如果他们不是天天锻炼，就不会这么健康。

(2) Even if he were here, he could not solve the problem. 即使他在这里，也解决不了问题。

2．与过去事实相反的假设，条件状语从句的谓语动词用过去完成时，主句的谓语动词用 would (should, could, might)+过去分词。

(1) He would have already recovered from his illness if he had seen the doctor in time. 如果他及时地看了病，应该已经痊愈了。

(2) If she hadn't been so strict with herself, she wouldn't have made such great progress. 她要是对自己要求不严格，就不会有这样大的进步。

3．与将来事实相反的假设，或将来的动作不太可能实现时，条件状语从句和主句的谓语动词的用法与现在事实相反的条件和结果相同；条件从句中亦可用 were to +动词原形(比较正式，常用于书面体中)或 should +动词原形。

(1) If it were Sunday tomorrow，my brother would go skating at the Beihai Park. 如果明天是星期天，我弟弟会去北海公园滑冰的。

(2) If the boiler were to go wrong, the controlling system would cut off the fuel oil supply automatically. 万一锅炉发生故障，控制系统会自动切断燃油的供给。

(3) I bet Brazil will win the World Cup. If it should lose, I would treat you a meal. 我打赌巴西会赢得世界杯。要是巴西输了，我就请你搓一顿。

3 种情况的具体形式如表 2.1 所示。

表 2.1　3 种 if 引导虚拟语气

	if 条件句谓语动词形式	主句谓语动词形式
与现在事实相反	did (be 用 were)	would/could/might+do
与过去事实相反	had done	would/could/might have done
将来不可能发生	did (be 用 were), were to do 或 should do	would/could/might+do

但当条件从句中的动作和主句中的动作发生的时间不一致时，从句和主句的谓语动词要根据各自所指的不同时间选择适当的动词形式，称为错综时间条件句。



(1) If you hadn't helped me, most likely I would be still working now. 假若你没有帮助我，我很可能现在还在干哩！

(2) If I were you, I would have taken that job. 我要是你，我当时就接受那份工作。

在书面语中，如果 if 引导的虚拟条件状语中有 should, had 或 were，可以省略 if，将 should, had 或 were 提到句首，成为倒装结构。

(1) Had you informed me earlier, I wouldn't have signed the contract. 当初你要早点告诉我，我是不会签那个合同的。

(2) Should there be a fire, please raise the alarm at once. 若万一发生火灾，请立即发警报。

(3) Were he to succeed, the sun would rise from the west. 如果他能成功，太阳就会从西边出来。

省略了 if 的倒装形式的句首不能用动词的缩略形式。

正：Were it not for the expense, I would go to Italy. 要不是因为花销大，我就去意大利。

误：Weren't it for the expense, I would go to Italy.

十三、有时虚拟条件并不以条件从句表示出来，而是以其他形式表现出来，称为含蓄虚拟条件句。

1．虚拟条件用介词短语来表示，如 without(要是没有)，but for(要不是)。

(1) Without proper means of control, a nuclear reactor would explode. 如果没有恰当的控制手段，核反应堆就会爆炸。

(2) But for electricity, there would be no modern industry. 要是没有电，就不会有现代化工业。

2．以 but 表现出来。

(1) My daughter would gain weight but she doesn't eat enough. 我女儿本该胖一点的，但她吃得不够。

(2) She would have come, but she wasn't informed, nor invited. 她本该来的，可是没有通知她，也没有邀请她。

3．以 or 或 otherwise 表现出来。

I ran all the way to school, otherwise I would have been late. 我一路跑到学校，否则我就会迟到了。

4．虚拟条件用动词不定式来表示。

(1) It would produce bad results to do that. 那么做会导致不良后果。

(2) It would be a fantastic experience to climb up to Mount Everest. 要能登上珠穆朗玛峰，那经历该多棒！

5．虚拟条件用比较级来表示。

(1) A more responsible person would not have left the work half done. 一个更负责的人是不会把工作做到一半就不管的。

(2) A wiser man would not have done such a foolish thing. 聪明一点的人是不会干出这等蠢事的。

6．用其他方法来表示。

All this would have been impossible ten years ago. 这一切在 10 年前是不可能有的。

7．表示虚拟语气的条件从句有时形式上可以省略，但意义上却仍存在。

(1) I wish Lao Li were here. He would know how to fix the machine. 我真希望老李在这儿，他会知道怎样把机器修好的。

(2) You could have done it yourself. 你本可以自己做的(但是你没有)。

Extended Reading

Influence of Containerization on the Shipping Industry

Few initially foresaw the extent of the influence of containerization on the shipping industry. In the 1950s Harvard University economist Benjamin Chinitz predicted that containerization would benefit New York by allowing it to ship its industrial goods more cheaply to the Southern United States than other areas, but did not anticipate that containerization might make it cheaper to import such goods from abroad. Most economic studies of containerization merely assumed that shipping companies would begin to replace older forms of transportation with containerization, but did not predict that the process of containerization itself would have a more direct influence on the choice of producers and increase the total volume of trade.

In the 1960s and 1970s, loading methods on liner shipping switched to containers. These brought massive changes. In the old days ships lay alongside for weeks while dockmen laboriously made up sling loads of cargo, 2-5 tonnes at a time. Containers enabled shippers to fill standard-sized steel boxes any time, anywhere, often using cheap off-wharf labour. The pre-assembling of cargo brought costs down—ships only make money when under way—and ship turnaround times speeded up.

Now that ships no longer faced weeks alongside the wharf, it became feasible to build them bigger, offering further economies of scale. In the Europe trade in the 1970s, therefore, 45,000-ton container vessels replaced 10,000-ton ships. The next generation was even bigger. The Mairangi Bay (1978) could carry 2,400 twenty-foot equivalent units (TEU). Her 21st-century replacement, the P&O Nedlloyd Mairangi, carries 4,100.

But as ships got bigger, crews got smaller. In the 1980s and 1990s, increased mechanization and labour & management reforms further reduced the turnaround time. In the 2000s container ships often have fixed-day sailings and guaranteed berths, and even the largest may arrive and depart on the same day. Globalization and the collapse of traditional shipping groups caused many lines to disappear altogether. All these caused the shrink of local merchant marine. Those who used to earn their living in shipping mostly do so ashore, as ship agents, freight forwarders, marine surveyors and the like.

(资料来源：http://www.teara.gov.nz/en/)



Words and Expressions

foresee	[fɔː'siː]	*v.*	预见，先见
economist	[ɪ'kɒnəmɪst]	*n.*	经济学者

predict	[prɪ'dɪkt]	*v.*	预计，预报
anticipate	[æn'tɪsɪpeɪt]	*v.*	预测
import	[ɪm'pɔːt]	*v.*	进口
		n.	进口货，输入物
merely	['mɪəlɪ]	*adv.*	仅仅，只
assume	[ə'sjuːm]	*v.*	设想，假定
replace	[rɪ'pleɪs]	*vt.*	代替，取代
replace…with…			替换为……，以……代替
process	['prəʊses]	*n.*	过程，进程
trade	[treɪd]	*n.*	贸易，商业
liner shipping			班轮运输
switch	[swɪtʃ]	*v.*	转变，改变
massive	['mæsɪv]	*adj.*	大的，大规模的
dockman	['dɒkmən]	*n.*	码头工人
laboriously	[lə'bɔːrɪəslɪ]	*adv.*	辛苦地；费力地
sling	[slɪŋ]	*n.*	吊，吊索
		vt.	吊；吊运
wharf	[wɔːf]	*n.*	码头
assemble	[ə'semb(ə)l]	*v.*	聚集，集合
under way			在航行中
turnaround	['tɜːnəraʊnd]	*n.*	停航时间，周转时间
speed up			(使)加速
now that			既然，由于
feasible	['fiːzɪb(ə)l]	*adj.*	切实可行的，行得通的，适宜的
vessel	['ves(ə)l]	*n.*	船，舰
equivalent	[ɪ'kwɪv(ə)l(ə)nt]	*n.*	相等物；等量物
TEU			(twenty-foot equivalent unit)20'标准箱
crew	[kruː]	*n.*	全体船员
mechanization	[ˌmekənaɪ'zeɪʃən]	*n.*	机械化
reform	[rɪ'fɔːm]	*n./v.*	改革，改良
sailing	['seɪlɪŋ]	*n.*	航行，启航
guarantee	[gær(ə)n'tiː]	*vt.*	保证，确保
berth	[bəːθ]	*n.*	泊位
depart	[dɪ'pɑːt]	*v.*	离开，启程
globalization	[ˌgləʊbəlaɪ'zeɪʃən]	*n.*	全球性，全球化
collapse	[kə'læps]	*n./v.*	崩溃，失败
shrink	[ʃrɪŋk]	*n./v.*	收缩，缩小

merchant	['mə:tʃ(ə)nt]	*adj.*	商业的，商船的
		n.	商人
marine	[mə'ri:n]	*n.*	海运业；[总称](国家的)所有船舶
merchant marine			(一个国家的)商船，商船队
ashore	[ə'ʃɔ:]	*adv.*	在岸上，在陆地上
agent	['eɪdʒənt]	*n.*	代理人；化学剂
ship agent			船舶代理人
freight	[freɪt]	*n.*	运货，货物
freight forwarder			货运代理人
survey	[sə'veɪ]	*v.*	检验，调查，测量

Chapter 3

Container Construction and Dimensions



Container inspection requires the knowledge of the construction of containers. This chapter relates to the most common type, the 20-ft and 40-ft steel dry-van, which contains features also found on many of the other types.

General

There are various types of containers accommodating different needs: dry-van (closed), open-top, high cube, open-side, bulk, flatrack, tank, refrigerated, and others. All these kinds of containers have standard dimensions and features for handling and for rapid transfer from one mode of transport to another. Problem-free dispatch has been assisted by the standardization of transport units (such as containers), while the standardization of certain components and some dimensions permits the use of standard handling equipment and means of transport.

To be a container inspector requires a basic knowledge of the construction and dimensions of containers. We will describe fundamental components and designs first of all with reference to the most common type, that is, standard box containers, the 20-ft and 40-ft steel dry-van, which contains features also found on many of the other types.

Construction Feature of the Container

A container is composed of a rigid frame, usually made of steel or aluminum, and panels between the frame members. The names of container components may vary in different parts of the world. However, the following conventions are in common use:

- DOOR and REAR refer to the end containing the door.
- FRONT is the end of the container parallel to and opposite the door.
- LEFT and RIGHT refer to the sides toward the left or right, respectively, as viewed from outside the container facing the doors.

NOTE:

1. Transverse elements, such as crossmembers and roof bows are numbered for identification purposes, beginning at the door end.
2. Most damage and repair codes also number panels beginning at the door end.

The principal structural load-bearing element of all box containers is the framework composed of the following parts:(Fig.3.1)



Fig.3.1 Basic container frame

1. Front end frame consisting of a transverse front header (or front top rail), two front corner posts, a front sill (or front bottom rail), and four corner fittings.
2. Rear (or door) end frame consisting of a transverse rear (or door) header (or rear top rail),



two rear corner posts, a rear (or door) sill (or rear bottom rail), and four corner fittings.

3. Longitudinal top (side) rails and bottom (side) rails, which join the end frames together.

Transverse bottom cross members are fitted between the bottom side rails, to serve as supports for the floor covering. Cargo rests on the floor of the container, which is supported by the bottom side rails, the sills and the crossmembers (Fig.3.2). The floor is usually made of plywood panels, solid or laminated hardwood or softwood planks, or a combination of alternating wooden and steel planks. Other materials such as bamboo, plastics or composites are also being developed as flooring material. Plywood panels are sometimes supported longitudinally in the center of the container by a center spacer.



Fig.3.2 Bottom cross members running between the bottom side rails and supporting the floor

Between the end frame members is an end wall composed of panels, and between the top and bottom side rails are side walls composed of side panel (Fig.3.3). Corrugated side panels may have flat areas running the full vertical height of the panels near each end called marking panels for placement of markings required by the owner. On some side walls, ventilators may be found just below the top side rail, which allow exchange of air in the container while preventing entry of solids or liquids (Fig.3.4).



Fig.3.3 End walls and side walls



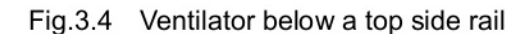


Fig.3.4 Ventilator below a top side rail



Fig.3.5 Roof panel

On the top of the dry-van container between the top side rails is the roof, composed of a number of flat or corrugated roof panels (Fig.3.5). If the roof panels are flat, they are reinforced on the interior side of the roof by a varying number of roof bows. These are usually arched upwards toward the center of the roof to allow for drainage. The corners of the roof adjacent to the corner fittings may be reinforced by corner protection plates (or corner gusset). Alternately, a header extension plate, which projects from the upper portion of the header over the top of the container, may be used for reinforcement.

The end and side walls and the roof are the components of a standard box container which are capable of bearing the least load. To a certain degree, this naturally also depends on the construction materials used for them.

At the rear of the container are two doors, which are normally composed of flat or corrugated panels on the exterior and a supporting frame on the interior. The doors are held in place by three, four or five hinges per door (Fig.3.6).

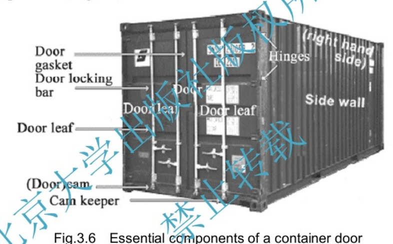


Fig.3.6 Essential components of a container door

Most 40' and all high-cube containers are fitted with a gooseneck tunnel in the understructure to mate with the gooseneck structure of a chassis (Fig.3.7).

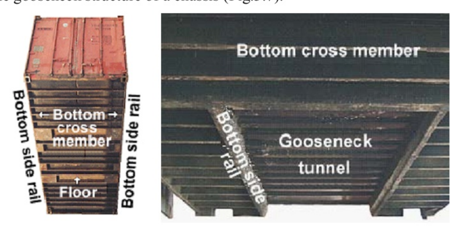


Fig.3.7 Part names in the area of the container floor

Diagrams Illustrating Container Construction

A diagram detailing the layout of container parts is shown below: (Fig.3.8)



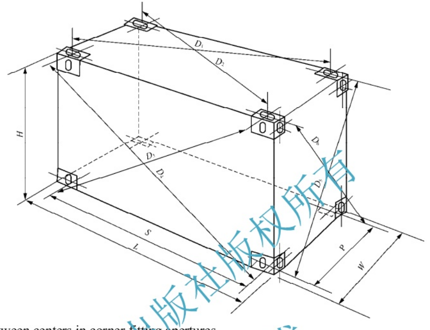
CORNER FITTING
HEADER EXTENSION PLATE
TOP SIDE RAIL
CORRUGATED ROOF
CORNER GUSSET
TOP SIDE RAIL
FRONT HEADER
HEADER EXTENSION PLATE
ROOF BOW
ALTERNATIVE: FLAT ROOF
FRONT END
ROOF PANEL
END WALL
TOP SIDE RAIL
CORNER FITTING
REAR HEADER
CORNER POST
SIDE PANEL
CORNER FITTING
VENTILATOR
GOOSENECK TUNNEL PLATE
LASHING FITTINGS
LEFT SIDE
CENTER SPACER
CORNER FITTING
CORNER POST
J BAR
FLOOR (MADE OF PLYWOOD)
SIDE PANEL
THRESHOLD PLATE
HINGES
DOOR (EDGED WITH GASKETS)
CORNER FITTING
RIGHT SIDE
LOCKING BARS (CAMS ON THE ENDS)
REAR (DOOR) END

PLYWOOD FLOOR
CROSS MEMBERS
LASHING FITTINGS
NOTE: FLOOR CROSSMEMBERS MAY BE CHAMMELS,"I" BEAMS OR OTHER APPROPRIATE SECTIONS
FORKLIFT POCKETS
FORKLIFT POCKET STRAPS (EXTEND 200 MM[8 IN] FROM EACH END OF POCKET)
BOTTOM SIDE RAIL

Fig.3.8 Genearl arrangement of container components

ISO Dimensions and Tolerances

The International Organization for Standardization (ISO) prescribes certain minimum and maximum dimensions that are to be preserved, with positive and negative tolerances (i.e., allowances above and beyond the specified dimensions) (Fig.3.9, Table 3.1, Table 3.2).



S = Length between centers in corner fitting apertures
P = Width between centers in corner fitting apertures
L = External length of the container
W = External width of the container
D = Distance between centers of apertures of diagonally opposite corner fittings
K_1 = Difference between D_1 and D_2 or D_3 and D_4
K_2 = Difference between D_5 and D_6
H = Overall height

Fig.3.9 ISO dimensions

Table 3.1 External Dimensions and Tolerances in Millimeters and in Feet and Inches

Height: $8\frac{1}{2}$ ft. high: $2,591^{+0}_{-5}$ mm (8ft. 6in. $^{+0}_{-\frac{3}{16}}$ in.)

$9\frac{1}{2}$ ft. high: $2,896^{+0}_{-5}$ mm (9ft. 6in. $^{+0}_{-\frac{3}{16}}$ in.)

Width: All containers: $2,438^{+0}_{-5}$ mm (8ft. 0in. $^{+0}_{-\frac{3}{16}}$ in.)

Freight container designation	Length (external)			S			P			K_1 max.		K_2 max.	
	mm	ft	in	mm	ft	in	mm	ft	in	mm	in	mm	in
20'	$6,058^{+0}_{-6}$	19	$10\frac{1}{2}^{+0}_{-\frac{1}{4}}$	5,853	19	$2\frac{7}{16}$	2,259	7	$4\frac{31}{32}$	13	$\frac{1}{2}$	10	$\frac{3}{8}$
40'	$12,192^{+0}_{-10}$	40	$0^{+0}_{-\frac{3}{8}}$	11,985	39	$3\frac{7}{8}$	2,259	7	$4\frac{31}{32}$	19	$\frac{3}{4}$	10	$\frac{3}{8}$



Table 3.2 Minimum Internal Dimensions

Freight container designation	Minimum height	Minimum width		Minimum length		
		mm	in	mm	ft	in
20'	Nominal container external height minus 241mm ($9\frac{1}{2}$ in)	2,330	$91\frac{3}{4}$	5,867	19	3
40'				11,998	39	$4\frac{3}{8}$



Words and Expressions

accommodate	[ə'kɒmədeɪt]	*v.*	适应，使适合
dimension	[dɪ'menʃ(ə)n]	*n.*	尺寸
feature	['fi:tʃə]	*n.*	(事物的)特征
handle	['hænd(ə)l]	*v.*	处理，搬运，装卸
transfer	[træns'fɜ:(r)]	*n.*	转运，转移
mode	[məʊd]	*n.*	形式；种类
dispatch	[dɪs'pætʃ]	*n.*	发送，发出，派出
component	[kəm'pəʊnənt]	*n.*	构件
inspector	[ɪn'spektə]	*n.*	检验员
fundamental	[fʌndə'mentəl]	*adj.*	基本的，基础的
with reference to			关于
be composed of			由……组成
rigid	['rɪdʒɪd]	*adj.*	坚硬的，刚性的
vary	['veərɪ]	*vi.*	有不同，相异
convention	[kən'venʃ(ə)n]	*n.*	习惯，惯例
parallel	['pærəlel]	*adj.*	平行的，同方向的
be parallel to			与……平行
transverse	[trænz'vɜ:s]	*adj.*	横的；横向的
crossmember	['krɒsmembə]	*n.*	横梁
framework	['freɪmwɜ:k]	*n.*	构架，框架
end frame			端框
header	['hedə]	*n.*	楣
front top rail			上端梁
post	[pəʊst]	*n.*	柱
corner post			角柱
sill	[sɪl]	*n.*	窗台，门槛
front bottom rail			下端梁
corner fitting			角件
longitudinal	[ˌlɔndʒɪ'tju:dɪn(ə)l]	*adj.*	纵的；纵向的

plywood	['plaɪwʊd]	*n.*	层压木板，胶合板
laminate	['læmɪneɪt]	*vt.*	层合；用薄片叠成
combination	[kɒmbɪ'neɪʃ(ə)n]	*n.*	组合，结合
alternate	[ɔːl'təːneɪt]	*v.*	交替，更迭，间隔着穿插
composite	['kɒmpəzɪt]	*n.*	合成物，复合材料
center spacer			中梁
corrugate	['kɒrʊgeɪt]	*v.*	(使)起皱；(使)起波纹
vertical	['vɜːtɪk(ə)l]	*adj.*	垂直的
marking panel			标志板
ventilator	['ventɪleɪtə]	*n.*	通风设备，通风器
interior	[ɪn'tɪɜːrɪə]	*adj.*	内的；内部的
		n.	内部，里面
arch	[ɑːtʃ]	*v.*	(使)弯成弓形
drainage	['dreɪnɪdʒ]	*n.*	放水，排水
adjacent	[ə'dʒeɪs(ə)nt]	*adj.*	接近的，邻近的
be adjacent to			接近
corner protection plate			箱角护板
gusset	['gʌsɪt]	*n.*	角撑板，加强版
corner gusset			箱角加强板
header extension plate			楣部延伸板
project	[prə'dʒekt]	*v.*	(使)突出，凸出
portion	['pɔːʃ(ə)n]	*n.*	部分
exterior	[ɪk'stɪərɪə]	*adj.*	外部的，外面的
hinge	[hɪn(d)ʒ]	*n.*	铰链
gasket	['gæskɪt]	*n.*	密封垫
door gasket			门封条
door locking bar			门锁杆
cam	[kæm]	*n.*	凸轮，凸轮锁头
cam keeper			锁座
gooseneck	['guːsnek]	*n.*	雁颈，鹅颈
tunnel	['tʌnəl]	*n.*	隧道，隧洞
gooseneck tunnel			鹅颈槽
mate with			紧密配合
diagram	['daɪəgræm]	*n.*	示(意)图
illustrate	['ɪləstreɪt]	*vt.*	给……加插图(以说明)
prescribe	[prɪ'skaɪb]	*v.*	指示，规定，开药方
aperture	['æpətʃə]	*n.*	孔，孔眼
diagonal	[daɪ'æg(ə)n(ə)l]	*adj.*	对角线的





Notes

1. 箱顶拱梁加固平面型顶板的箱顶结构现在已基本被波纹型顶板取代。
2. There are various types of containers accommodating different needs: dry-van (closed), open-top, high cube, open-side, bulk, flatrack, tank, refrigerated, and others. 有各种类型的集装箱用于各种不同的要求，如干货箱(封闭式)、敞顶箱、高箱、敞侧箱、散货箱、框架箱、罐式箱、冷藏箱等。

there be 句型完全倒装。现在分词短语 accommodating different needs 作定语，和介词短语 of containers 一起修饰名词 types，它的功能相当于定语从句 that accommodate different needs。倒装用法详见第 1 章语法部分。现在分词用法详见第 7 章语法部分。

3. To be a container inspector requires a basic knowledge of the design and construction of containers. 要成为验箱员就必须掌握有关集装箱设计和构造方面的基本知识。

动词不定式 to be a container inspector 作主语，单个不定式作主语，谓语动词 require 用单数。不定式用法详见第 5 章语法部分。有关主谓一致的用法详见本章语法部分。



Exercises

I. 用中文或英文回答问题

1．本章主要讲的是哪种集装箱的基本构造？

2．前端指的是集装箱的哪一端？后端指的是哪一端？

3．左右侧是以哪个方位为准判断的？

4．集装箱的主要承重结构体是什么？

5．箱角加强板有什么作用？

6．为什么箱顶拱梁通常向箱顶中心拱起？

7．ISO 规定 20 英尺标准箱外部长、宽、高的公制尺寸允许范围分别是多少？

8．按照 ISO 规定，外部公称高度为 2590mm 的 40 英尺标准箱内部高度不能小于多少？

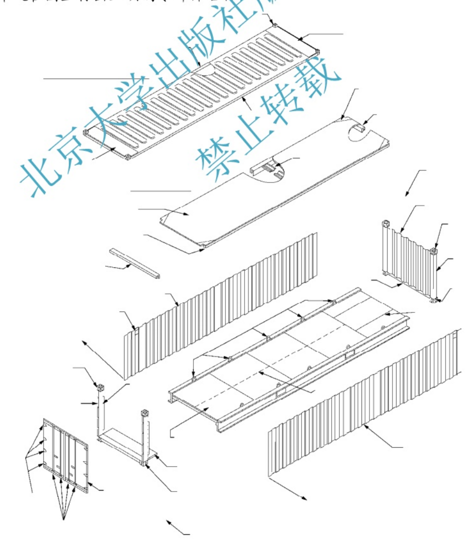
II. 英译汉

part name	零部件名称	part name	零部件名称
front top rail/front header		side panel/side wall	

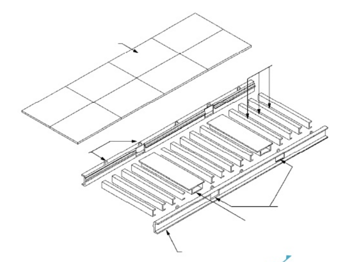
续表

part name	零部件名称	part name	零部件名称
front bottom rail/front sill		marking panel	
corner post		roof panel	
corner fitting/corner casting		roof bows	
rear header/door header/rear top rail		corner protection plate/corner gusset	
rear sill/door sill/rear bottom rail		header extension plate	
top side rail		hinge	
bottom side rail		door locking bar	
bottom cross member		cam	
floor		cam keeper	
center spacer		door gasket	
front end wall		gooseneck tunnel	

III. 用中文在图上标出正确的零部件名称







Grammar Concerned

主谓一致

一、单个动名词、不定式、以 whether, why, how 等引起的主语从句作主语，谓语动词用单数。

(1) To be a container inspector requires a basic knowledge of the design and construction of containers. 要成为验箱员，就必须掌握有关集装箱设计和构造的基本知识。

(2) Assuring a high standard of inspection is of great importance to the industry. 确保高标准的检验对本行业来说是极其重要的。

(3) When and where to hold the meeting isn't decided yet. 还没有决定何时何地开会。

二、以 s 结尾的书刊名、学科名、机构名和国名作主语，谓语用单数。

(1) *The Canterbury Tales* was written by Chaucer. 《坎特伯雷故事集》是乔叟写的。

(2) Economics is my major. 经济学是我的专业。

(3) The United Nations was set up in 1942. 联合国成立于 1942 年。

三、不定代词 one, the other, another, either, neither, every, each 以及所有 every, each, some, any, no 构成的复合不定代词作主语时，谓语动词用单数。

(1) I have two sisters. One is here, and the other is not here. 我有两个姐妹，一个在这儿，一个不在这儿。

(2) Either of the two books here is worth reading. 这有两本书，都值得一读。

(3) Neither of these two dictionaries contains this word. 这两本词典都没收录这个词。

(4) Everyone is here. 所有人都在这里。

(5) Somebody is asking you on the phone. 有人打电话找你。

复合代词作主语，反意疑问句的主语通常用 they，也可用 he。

(1) Everyone was present at the meeting, weren't they / wasn't he? 所有人都到会了，不是吗？

(2) Someone has known the news, haven't they / hasn't he? 有人知道消息了，不是吗？

四、another, either, neither, every, each, no 等作定语仅能修饰单数名词主语，其谓语动词用单数。

Each day is better than the one before. 一天比一天好。

五、由 many a 或 more than one 所修饰的单数名词主语，意义上虽然是复数，但谓语动词用单数。

(1) More than one criterion covers this damage situation. 损坏或磨蚀状况受两项以上标准制约。

(2) Many a day has passed since the boy was lost. 那个男孩失踪已有许多天。

六、a number of +复数名词作主语，谓语用复数。

A large number of students are from the south. 很多学生是南方人。

七、集体名词 family, class, crew(全体船员或机组人员), crowd, group, committee, audience, government, public, team, staff, population 等作主语时，若作为一个整体看待，后面谓语动词用单数；如就其中每一个成员来考虑时，则用复数。集体名词 people, police, cattle(牛), militia(民兵), poultry(家禽), vermin(害虫)等作主语时，后面的动词要用复数。

(1) Responsible, quality-conscious staff plan and devise optimum transit procedures. 有责任感和质量意识的员工会计划、制订最佳的运输流程。

(2) My family is a big one. 我家人多。

(3) My family are all music lovers. 我全家人都爱好音乐。

(4) There were people waiting outside. 有许多人在外面等着。

八、表示时间、重量、长度、价值等的单位名词，尽管是复数形式，如果作整体看待，动词都用单数形式；如果看作组成该数量的一个一个的个体，则动词用复数。

(1) Eight minutes is enough. 8 分钟够了。

(2) There are six silver dollars in each of the stocking. 每只袜子里有 6 个一美元的银币。

九、“the+形容词”或“the+分词”表示一类人作主语时，谓语动词用复数；表示抽象概念或指个别事物时，谓语动词用单数。

(1) The sick have been cured. 病人得到了医治。

(2) The beautiful is loved by all. 人人都爱美。

十、单复数同形的名词如 deer, means(方法、手段)，其前面有 each, every, neither, either 等单数概念的定语时，谓语动词用单数；若有 all, both, these 等复数概念的定语时谓语动词用复数。

(1) Every means is to an end. 每一种手段都是为了达到一种目的。

(2) All possible means have been tried.所有方法都试过了。

十一、百分比、分数、half, part 或 the rest, some, more, most, any, all 等代词 of + *n.*，其谓语的单复数由整体部分决定。

(1) About 70% of the surface of the earth is covered by water. 地球表面约 70%覆盖着水。

(2) Eighty percent of China’s population are peasants. 百分之八十的中国人口是农民。

(3) Here’s some more (coffee). 再来点(咖啡)。

(4) Here’re some more (tomatoes). 再来几个(西红柿)。

十二、none of+复数名词作主语，谓语可以是单数也可以是复数；none of+单数或不可数名词作主语，谓语用单数；none of the means 作主语时，谓语动词通常用单数。

(1) None of the cars was / were damaged. 这些车都没有受损。



(2) None of the food has gone bad. 食物没有变质。

十三、what, who, which 等疑问代词作主语，谓语可以是单数也可以是复数，主要靠意思决定；但指不可数名词时作单数看待。

(1) Which is your book? 哪本是你的书？

(2) Which are your books? 哪些是你的书？

十四、以 what, who 等引起的从句为主语，what, who 从句本身是单数意义，主句谓语动词用单数；从句本身是复数意义，主句谓语动词用复数。以 what, who 从句为主语的“主—系—表”句型中，主句的表语是复数，主句谓语动词用复数。

(1) What she told me is none of your business. 她和我说的什么用不着你管。

(2) What I need buy now are four tea cups and a pair of sports shoes. 我需要买的是四只茶杯和一双运动鞋。

(3) What were thought to be five dogs were actually five sheep. 被认为是五条狗的东西实际上是五只羊。

十五、由 and 连接的两个或多个单数名词、并列的不定式、动名词或主语从句作主语，如果指两件事，谓语动词用复数形式；如果 and 连接的并列的主语在意义上是指同一个人、一个单一概念或对立统一的事物时，谓语动词用单数。

(1) Proper preparation, authorization and repair activities have taken place. 已经进行了适当的准备、授权和修理作业。

(2) Both the sharp damage and any underlying gradual damage are captured in the measurement. 测量包括了突变及任何可能的渐变。

(3) Accuracy and consistency in measurement is key to maintaining containers in safe and serviceable condition. 测量准确一致是保持集装箱安全可用的关键。

(4) To live to eat and to eat to live are two different attitudes toward life. 为吃喝活着和为活着吃喝是两种截然不同的人生态度。

(5) What she says and what she does are totally different. 她说的和做的完全不同。

(6) Bread and butter has been my breakfast for years. 黄油面包多年来一直是我的早餐。

(7) The manager and secretary is as busy as a bee all day. 那位经理兼秘书整天忙得像只蜜蜂。

十六、由 and 连接的单数主语有 many a, every, each, no 修饰时，动词用单数。

(1) Many a man and many a woman was moved by this picture. 许多男女都被这幅画感动。

(2) During the holiday, every/each train and every/each plane was crowded. 假期期间每列火车及每架飞机都非常拥挤。

(3) No plane and no pilot is ready to take off. 没有一架飞机、没有一个飞行员已准备好起飞。

十七、做主语的名词或代词后接 with, together with, along with, as well as, besides, except/but, rather than 等短语时，谓语动词的形式依前面名词或代词而定，与后置定语无关。

(1) A library together with a lot of books has been given to our school as a gift. 我们学校得到了一座图书馆和很多书籍作礼物。

(2) The pilot as well as all the passengers was killed in this plane crash. 飞行员连同所有旅客都死于这次空难。

十八、当 or, either…or…, neither…nor…或 not only …but (also)…连接两个主语时，谓语动词应与最靠近的那个主语保持一致。

(1) Repair is required when the damage or wear exceeds any of the criteria limits. 当损坏或

磨蚀超出任一标准中的极限值，就必须进行修理。

(2) Either you or I am to meet them at the station. 不是你就是我要去车站接他们。

(3) Neither the children nor the teacher knows anything about it. 孩子们和老师都不知道这件事。

(4) Not only the teacher but also his students object to the plan. 老师和学生都反对这项计划。

十九、当 there be 结构后面有多个并列主语时，谓语也应与最靠近的那个主语保持一致。

(1) There are two computers and an air-conditioner in his office. 在他办公室有两台电脑和一台空调。

(2) Here is a pen, a few envelopes and some paper for you. 这儿有一支笔、几个信封和一些纸给你。

Extended Reading

Container Selection, Load Distribution and Load Planning

The loading capacity of a container is also referred to as line load. For example, an average 20-foot standard container has a line load of 6 tonnes, and a 40-foot standard container may have a line load of 3 tonnes. Containers with significantly higher line loads also exist. Flatracks have a significantly reinforced floor area, and the side rails of a flatrack can be used directly. As a result, it is possible to accommodate much greater loads.

As early as when the order is placed, it is necessary to make sure that the container is suitable for the cargo. It is important to make sure that the container can cater for the required payload and possesses the necessary load-carrying capacity and the required volume.

If the line loads are not observed, the container will be damaged. Even simple overloading which damages the structure of the container is problematic. This is dangerous because this type of damage often goes undetected. If a container that has already suffered damage in this way fails, for example in the bottom layer on the deck of a container ship, then the entire stack above it will collapse. A collapsed stack is no longer secured and can therefore move unrestrictedly. Every time the ship moves, the unsecured stack topples against the neighboring stacks like a wrecking ball. These cannot withstand such stresses for long and give way in their turn. This can result in the feared losses of cargo on container ships which can endanger the entire vessel.

And loading should be planned before operations are started as well. Proper load planning is the best protection against damage. This should make it possible to segregate incompatible cargoes and produce either a tight or secured stow, in which the compatibility of all items of cargo and the nature, i.e. type and strength, of any packages or packaging involved are taken into account. Hazardous goods must be stowed on the floor and the entire cargo must be correctly secured against the stresses. Light on heavy, dry above wet. The center of gravity should be located either at or in the immediate vicinity of the container's longitudinal axis. The load distribution in the longitudinal direction must be planned in such a way that no half of the container bears more than 60 percent of



the payload. And the possibility of cross-contamination by odor or dust, as well as physical or chemical compatibility, should be considered.

(资料来源：http://www.tis-gdv.de/tis_e/inhalt.html)



Words and Expressions

distribution	[dɪstrɪ'bjuːʃ(ə)n]	*n.*	分配，配置
capacity	[kə'pæsɪtɪ]	*n.*	容纳能力，最大容量
loading capacity			载重量
refer to			谈到，提到；查阅，参考
line load			线载重
significantly	[sɪg'nɪfək(ə)ntlɪ]	*adv.*	大量地，显著地
cater for			满足(需要)
possess	[pə'zes]	*vt.*	有，具有
observe	[əb'zɜːv]	*vt.*	遵守，奉行；观察，观测
		vi.	观察，观测
overload	[əʊvə'ləʊd]	*vt.*	使超载，使过载
problematic	[prɒblə'mætɪk]	*adj.*	成问题的
detect	[dɪ'tekt]	*vt.*	发觉，觉察，发现
layer	['leɪə]	*n.*	层，一层
stack	[stæk]	*n./v.*	堆，垛
restrict	[rɪ'strɪkt]	*vt.*	限制
topple	['tɒp(ə)l]	*v.*	倒下，推倒
wreck	[rek]	*v.*	破坏，毁坏
wrecking ball			落锤破碎机
withstand	[wɪð'stænd]	*v.*	反抗，经得起
stress	[stres]	*n.*	应力，压力
give way			倒塌；退让
endanger	[ɪn'deɪn(d)ʒə]	*vt.*	危害，使遭受损失(或损害、危险)
segregate	['segrɪgeɪt]	*v.*	(使)分离；(使)分开；(使)隔离
compatible	[kəm'pætɪb(ə)l]	*adj.*	相容的
package	['pækɪdʒ]	*n.*	包裹
		vt.	包装，装箱
take into account			考虑到，把……考虑进去
hazardous	['hæzədəs]	*adj.*	有危险的
locate	[lə(ʊ)'keɪt]	*vt.*	安置，使……坐落在；找到，找出
vicinity	[vɪ'sɪnɪtɪ]	*n.*	附近，邻近
axis	['æksɪs]	*n.*	轴；轴线，中心线
bear	[beə]	*v.*	承受，支撑

contamination	[kənˌtæmɪˈneɪʃən]		
		n.	污染，污染物
odor	[ˈəʊdə]	*n.*	气味，臭气
dust	[dʌst]	*n.*	尘土，灰尘
		v.	掸尘，擦灰

Chapter 4

Causes of Damage during Transport



Now we have had a basic knowledge of the design and construction of intact containers. In order to be a container inspector, we have to know how and why containers could be damaged during transport.



There are many companies in which responsible, quality-conscious staff plan and devise optimum transit procedures so that the goods to be shipped reach the receiver having suffered the least possible damage. In such companies, prevention of damage is a priority since it is common knowledge that economic success is to a great extent dependent upon customer satisfaction. Considerable effort is taken to avoid shipping damage or to limit the extent of such damage.

But there are also those personnel who don't care as much about preventing damage. Virtually inevitably, their actions or omissions cause damage and accidents. There are numerous cases of carelessness in shipping every year which are responsible for the majority of losses as they rapidly add up to huge sums of money.

For example, the line load was vastly exceeded, and consequently the container was damaged (Fig.4.1).

It is essential to avoid even the smallest gaps. But the cargo unit has been packed with gaps on both sides. And the container was stowed with gaps inside (Fig.4.2).



Fig.4.1 Line load exceeded

Fig.4.2 Comparison of improper and proper package

The cargo in this container had obviously not been sufficiently secured. As a result, the container was destroyed from the inside (Fig.4.3).

And here it's not the ship's management or crew who have fallen short, but those who were responsible for packing some of the containers. Nothing has happened to properly packed and secured containers, while poorly packed containers with inadequately secured cargoes have been destroyed. Even the vehicles labeled 1 and 2, which were not ideally secured, have withstood the effects of the rough seas (Fig.4.4).







Fig.4.3 Insufficient cargo secure





Fig.4.4 Comparison of properly and improperly packed containers

In practice, basic errors are sometimes made as early as during design and production of the goods which are ultimately to be shipped. Designers not only have to take account of a machine's subsequent function, but also of the fact that it must first be transported to where it will be used and installed there without suffering damage. Every machine should have slinging and lashing points so that it can be handled and secured without problem (Fig.4.5).



Fig.4.5 Machine without securing means: not fit for shipping

As is stated above, errors in the planning and execution of transport operations are for the most part due to human failure. Insufficient knowledge and inadequate skills on the part of many of those involved in cargo shipping are the root causes of subsequent losses. Or more specifically, poor understanding about the complex interrelationships in the provision of transportation services together with, in most cases, a very low level of training among the personnel involved with the physical handling of cargoes conspire to cost the world's economy billions every year, in which very large numbers of incidents of damage are attributable to the fact that many of those in charge are unaware of shipping stresses or assess them incorrectly.

On the contrary, effective and economic protective measures can be implemented if enough is known about the stresses to which the cargo is exposed during transport. Therefore, it's required that packers be instructed as to the forces acting on the cargo during transport, whether by road, rail or sea. This requirement stated in the CTU (Cargo Transport Unit) packing guidelines deserves strong support as observation of day-to-day practice reveals a frightening lack of knowledge precisely in this area.

Shipping stresses

Shipping stresses must in general be divided into two main groups:

- avoidable shipping stresses
- unavoidable shipping stresses

Avoidable shipping stresses are attributable to human shortcomings. Incidents of damage often occur because the cargo has been inadequately packed, stowed or secured or because equipment has been used incorrectly.

Unavoidable shipping stresses are determined by the nature of the transport operation and lie largely outside the sphere of human influence.

By source, shipping stresses may be summarized as shown below (Fig.4.6):

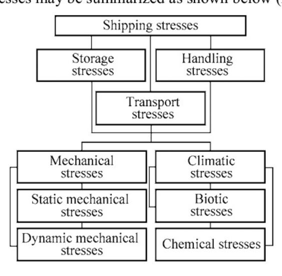


Fig.4.6 Overview of shipping stresses

As experience has shown and measurements have confirmed, the shipping stresses of different modes of transport differ markedly. It is extremely difficult to put exact values on storage, handling



and transport stresses because they are determined by many different parameters. In addition to the stresses shown in the overview, other factors of course also play a part, such as the means of transport used, the selected routes, the nature of the roads and railroads or the particular weather conditions prevailing during maritime transport. Consequently, it is not feasible to generalize about transport operations: each one will be somewhat different and will also be affected by randomly occurring factors. Hence, the better trained and the more experienced are those involved, the better will they be able to assess the transport risks and take effective action to counter them. Training and quality control are two key concepts which should play a central part in cargo securing.



Words and Expressions

conscious ['kɒnʃəs] *adj.* 自觉的；意识到的；有知觉的
devise [dɪ'vaɪz] *vt.* 制定出
optimum ['ɒptɪməm] *adj.* 最佳的，最优的
procedure [prə'si:dʒə] *n.* 过程；步骤
priority [praɪ'ɒrɪtɪ] *n.* 优先，重点
personnel [pə:sə'nel] *n.* [总称]员工，全体人员，全体职员
virtually ['vɜ:tʃʊəlɪ] *adv.* 几乎，事实上
inevitable [ɪn'evɪtəb(ə)l] *adj.* 不可避免的
omission [ə(ʊ)'mɪʃ(ə)n] *n.* 省略，疏忽，懈怠
numerous ['nju:m(ə)rəs] *adj.* 许多的，大量的
responsible [rɪ'spɒnsɪb(ə)l] *adj.* 应负责任的；尽责的，可靠的
be responsible for 对……负责；是……的原因
rapid ['ræpɪd] *adj.* 迅速的，快的
vastly ['vɑ:stlɪ] *adv.* 极大地
exceed [ɪk'si:d] *vt.* 越出，超越(限制、规定、限度等)
essential [ɪ'senʃ(ə)l] *adj.* (绝对)必要的，很重要的；本质的
stow [stəʊ] *vt.* 堆装，配载
sufficient [sə'fɪʃ(ə)nt] *adj.* 充分的，足够的
fall short 没有达到目标(或要求)
inadequate [ɪn'ædɪkwət] *adj.* 不充分的，不合格的，不适当的
vehicle ['vi:ɪk(ə)l] *n.* 车辆，运载工具
take account of 考虑到，顾及，重视
subsequent ['sʌbsɪkw(ə)nt] *adj.* 接下去的，随后的，后来的
install [ɪn'stɔ:l] *vt.* 安装
execution [ˌeksɪ'kju:ʃ(ə)n] *n.* 实行，执行，实施
transport operation 运输作业
for the most part 在极大程度上，大部分
on the part of 就……而言，由……所表现出的

conspire	[kən'spaɪə]	*v.*	共谋，协力，凑在一起造成
be attributable to			可归咎于
shipping stress			航运应力
implement	['ɪmplɪm(ə)nt]	*vt.*	执行，履行
expose	[ɪk'spəʊz]	*vt.*	使暴露，使面临，使遭遇
be exposed to			遭受，面临
as to			关于
Cargo Transport Unit			货物运输单元
precisely	[prɪ'saɪslɪ]	*adv.*	精确地，恰恰，正是
sphere	[sfɪə]	*n.*	球体，范围
static	['stætɪk]	*adj.*	静态的
dynamic	[daɪ'næmɪk]	*adj.*	动态的
climatic	[klaɪ'mætɪk]	*adj.*	气候的，由气候引起，受气候影响的
biotic	[baɪ'ɒtɪk]	*adj.*	生物的，生物作用促成，生物引起的
differ	['dɪfə]	*v.*	(使)不同，(使)相异
marked	[mɑːkt]	*adj.*	明显的，显著的
put value on			估价，赋值
parameter	[pə'ræmɪtə]	*n.*	参量；参数
play a part			起作用；有影响
prevail	[prɪ'veɪl]	*vi.*	占优势
maritime	['mærɪtaɪm]	*adj.*	海上的，海事的
generalize about			笼统地谈(某题目)
random	['rændəm]	*adj.*	随机的
counter	['kaʊntə]	*v.*	反抗，反击
central	['sentrəl]	*adj.*	中心的，重要的，主要的



Notes

1. There are many companies in which responsible, quality-conscious staff plan and devise optimum transit procedures so that the goods to be shipped reach the receiver having suffered the least possible damage. 在很多公司中，有责任感和质量意识的员工会计划、制订最佳的运输流程，以便待运货物以尽可能小的损坏运抵收货人。

定语从句 which responsible, quality-conscious staff plan and devise optimum transit procedures so that the goods to be shipped reach the receiver having suffered the least possible damage 作介词 in 的宾语。定语从句中集体名词 staff 作主语，本句强调其中每一个成员，因此后面谓语动词 plan 和 devise 用复数；如 staff 作为一个整体看待，则谓语用单数。完成式现在分词 having suffered the least possible damage 作状语，表示动词 reach 的方式、伴随情况。定语从句的用法详见第 14 章语法部分。有关主谓一致的用法详见第 3 章语法部分。现在分词的用法详见第 7 章语法部分。



2. Considerable effort is taken to avoid shipping damage or to limit the extent of such damage. 这些公司做出了诸多努力来避免航运损坏或者限制这种损坏的程度。

两个不定式 to avoid shipping damage 和 to limit the extent of such damage 放在句尾作状语，表示 take effort 的目的。不定式用法详见第 5 章语法部分。

3. But there are also those personnel who don't care as much about preventing damage. 但也有员工不怎么注意损坏预防。

定语从句修饰人，先行词为 those 或被 those 修饰时，关系代词只能用 who 不能用 that。定语从句的用法详见第 14 章语法部分。

4. And here it's not the ship's management or crew who have fallen short, but those who were responsible for packing some of the containers. 这里的问题不是出在船舶管理层或船员不合格，而出在部分集装箱的装箱人员。

强调句型强调主语部分 not the ship's management or crew, but those who were responsible for packing some of the containers(主语部分是 not…but…结构)。有关强调详见本章语法部分。

5. Designers not only have to take account of a machine's subsequent function, but also of the fact that it must first be transported to where it will be used and installed there without suffering damage. 设计师不仅要考虑机器以后的功能，还要考虑到它首先必须不受损坏地运抵使用场所并安装到位。

that 引导同位语从句对名词 fact 的实际内容做进一步解释，具体、详细的说明。同位语从句的用法详见第 12 章。

6. Therefore, it's required that packers be instructed as to the forces acting on the cargo during transport, whether by road, rail or sea. 因此，要求向装箱工人指明运输期间作用于货物上的各种应力，不管是公路、铁路还是海上运输。

whether…or…引导让步状语，意为"不管……还是……"。状语从句的用法详见第 15 章语法部分。

7. This requirement stated in the CTU packing guidelines deserves strong support as observation of day-to-day practice reveals a frightening lack of knowledge precisely in this area. CTU 装箱指南中所述的这项要求应该得到大力支持，因为观察日常实践就可以知道相关人员在这个领域的无知令人吃惊。

现在分词 frightening 作定语修饰 lack，作定语用的现在分词如果是单词，通常放在它所修饰的名词之前。现在分词的用法详见第 7 章语法部分。

8. As experience has shown and measurements have confirmed, the shipping stresses of different modes of transport differ markedly. 经验表明且测量已证实，不同运输形式的航运应力大不相同。

在 as 或 which 引导的非限定性定语从句中，as 和 which 指整个主句，而且由 as 引导的非限定性定语从句可以前置，即，既可放在主句之前，也可放在主句之后。本句中由 as 引导的非限定性定语从句 as experience has shown and measurements have confirmed 放在主句之前，as 指整个主句 the shipping stresses of different modes of transport differ markedly。定语从句的用法详见第 14 章语法部分。

9. Hence, the better trained and the more experienced are those involved, the better will they be able to assess the transport risks and take effective action to counter them. 所以，相关人

员越是训练有素、经验丰富，就能越好地评估运输风险并采取有效的行动应对。

“the 比较级，the 比较级”结构表示一方的程度随着另一方的变化而变化，意为“越……越……”，其中的两个 the 都是副词而不是冠词。两个动词不定式 to assess the transport risks 和 to take effective action 并列作形容词 able 的宾语，在第一个不定式前用 to，第二个不定式前的 to 省略。不定式用法详见第 5 章语法部分。

10. Training and quality control are two key concepts which should play a central part in cargo securing. 培训和质量控制是应该在货物安全保障中起核心作用的两个关键概念。

动名词 training 和名词词组 quality control 并列作主语。动名词用法详见第 6 章语法部分。



Exercises

I. 用中文或英文回答问题

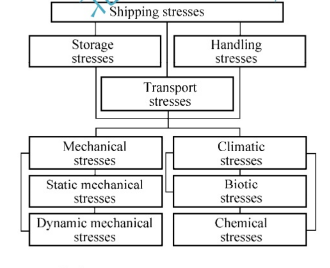
1．待运货物在设计和生产中要注意什么？

2．为什么货运人员要学习了解航运应力的知识？

3．总体上航运应力可以分成哪两大类？

4．可避免的航运应力是怎么产生的？

II. 英译汉



III. 汉译英

1．吊运点

2．装箱



3．配载

4．货物运输单元

5．运输作业

6．航运应力

Grammar Concerned

强调

英语的强调主要有两种，一是强调非谓语(包括主语、宾语、状语等)；二是强调谓语动词。

强调非谓语

其基本句型是 It+is/was+被强调的部分+that/who(m)+其他部分。如果被强调的部分是人，可用 who、whom，其他情况用 that。

一、强调主语。

(1) It's not the ship's management or crew who have fallen short here, but those who were responsible for packing some of the containers. 这里的问题不是出在船舶管理层或船员不合格，而出在部分集装箱的装箱人员。

(2) It is people, not things, that are decisive. 决定的因素是人，不是物。

(3) It is this overpass that will be pulled down. 将被拆掉的是这个天桥。

二、强调宾语。

(1) It is his dog that he's sold, not his car. 他已卖掉的是他的狗，不是车。

(2) It is us whom Prof. Wang teaches English every Monday afternoon. 王教授每周一下午是教我们英语。

(3) It is English that Prof. Wang teaches us every Monday afternoon. 王教授每周一下午教我们的是英语。

三、强调状语。

(1) It was not until Saturday that he began to prepare for the examination. 他直到星期六才开始为考试做准备。(强调时间状语)

(2) It might have been on the bus that I lost my purse. =It was on the bus that I might have lost my purse. 可能是在公共汽车上我丢失了钱包。(强调地点状语)

(3) It is because the book is very important for my present job that I bought it. 是因为这本书对我目前的工作很有用，我才买了它。(强调原因状语)

四、强调宾语补足语。

(1) It was wonderful that we considered his plan. 我们认为他的计划是绝妙的。

(2) It was white that Tom was painting the fence. 汤姆当时正在把篱笆涂成白色的。

五、强调主语补足语。

(1) It is Cadillac that this car is named. 这辆车被命名为卡迪拉克。

(2) It is the Buckingham Palace that the British Queen's office building is called. 英国女王的办公大楼被称作白金汉宫。

强调谓语动词

用"助动词 do+动词原形"来强调谓语动词。谓语动词只有两种时态能强调，即一般现在时和一般过去时：在一般现在时中，do 有人称的变化，第三人称单数用 does；一般过去时 do 变成 did。其他时态的强调通过重读谓语动词来体现。

一、强调一般现在时动词谓语。

I do love you. 我真的爱你。

My father does smoke a lot. 我父亲的确抽烟抽得厉害。

二、强调一般过去时动词谓语。

I did attend the meeting yesterday. 我昨天确实参加会议了。

He did write a letter to me. 他的确给我写了封信。

Extended Reading

Fit-for-purpose Packaging and Load Securing

Goods transported in containers are subject to various stresses. Different means of transport generate their own stresses which the cargo has to withstand. These stresses are both mechanical and climatic in nature. The International Maritime Organization (IMO) has recognized the problems caused by mechanical stresses and, some years ago, drew up the internationally acknowledged CTU packing guidelines. These CTU packing guidelines clearly indicate the acceleration forces which can be expected during transportation using the various means of transport. Overcoming these stresses demands fit-for-purpose packaging and appropriate load securing.

First of all, fit-for-purpose packaging is the logical prerequisite for secure transportation. Before goods become cargo, they must be correctly packed. Only when the packaging is fit for purpose can the goods be considered to be cargo. What does "fit-for-purpose" mean? Packaging must protect the goods against the expected stresses.

Every means of transport generates its own specific climatic and mechanical stresses. To design the correct packaging, it is necessary to know the route that the cargo is to take. Knowledge of the route makes it possible to identify the different climate zones and the acceleration forces of the different means of transport that need to be catered for. In addition to these external factors, it is also necessary to take account of internal factors. For example, if cargo is to be stacked in a container then the packaging must be able to withstand the corresponding stack pressure.

The purpose of load securing is to ensure that the cargo remains in its intended position, suffers no damage itself and causes no damage to other cargoes. The CTU packing guidelines indicate



precise acceleration forces which the cargo has to be secured against. The best way of securing a load occurs when cargoes naturally fit tightly against one another. If this is not possible, then the loads have to be secured. The cargo must not only be stowed securely in the container, it must also be secured in its packaging in a way that will withstand the stresses to which it is to be exposed.

To summarize, goods, in the form of cargo, demand expert handling. Only good training and a commitment to quality can lead to secure, responsible transportation.

(资料来源：http://www.tis-gdv.de/tis_e/inhalt.html)

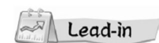


Words and Expressions

various	['veərɪəs]	*adj.*	很多的，不同的
generate	['dʒenəreɪt]	*vt.*	产生，造成
recognize	['rekəg'naɪz]	*v.*	确认，意识到
draw up			拟订
acknowledge	[ək'nɔlɪdʒ]	*vt.*	承认，确认
indicate	['ɪndɪkeɪt]	*vt.*	指示，指出，标示
acceleration	[əkselə'reɪʃ(ə)n]	*n.*	加速；加速度
acceleration force			加速力
logical	['lɒdʒɪk(ə)l]	*adj.*	逻辑(上)的
prerequisite	[priː'rekwɪzɪt]	*n.*	前提，先决条件
identify	[aɪ'dentɪfaɪ]	*vt.*	识别，认出
zone	[zəʊn]	*n.*	带，地带
external	[ɪk'stɜːn(ə)l]	*adj.*	外部的；外界的
internal	[ɪn'tɜːn(ə)l]	*adj.*	内部的，内在的
corresponding	[ˌkɒrɪ'spɔndɪŋ]	*adj.*	相应的
expert	['ekspəːt]	*adj.*	专门的，内行的
		n.	专家，行家
commitment	[kə'mɪtm(ə)nt]	*n.*	献身，投身，许诺

Chapter 5

Introduction to Container Inspection



How many types of defects may be found on containers? Does every defect found in inspection have to be repaired? What's an inspector's role or responsibility during inspection?



Definitions of Damage, Wear and Non-Conforming Repair

While containers are built of durable materials, they are not invulnerable to damage or the deteriorating effect of the elements. Inspections of containers are made in order to reveal conditions that may be unsafe or which may reduce the usefulness or life of the container. The types of defects that may be found in containers are damage, wear, and non-conforming repair.

Damage is one or more physical defects in a container caused by a single event or series of single events, such as impact, abrasion, etc. It frequently results from the improper handling or use of the container. The user is expected to exercise reasonable care in operating the container. In general, defects resulting from failure to do so, such as breaks, cracks, cuts, tears, holes, bends, bows, dents, and so on, are considered “damage”. Some of these defects can affect the structural integrity, dimensions (internal or external), watertightness or certification requirements of the container.

Wear is one or more physical defects caused by continuous deterioration in the physical condition of the container occurring under normal-use conditions, such as exposure to sea water and the elements. (“Normal use” implies the proper treatment and use of equipment under operational conditions for which it was specifically designed, by employing acceptable methods of handling, securing, ground storage, ship stowage and transport.) In another word, defects due to inevitable, continuous deterioration not reasonably avoidable by the user are considered wear. Note that a deteriorative defect is considered to be damage if it results directly from an event of damage or misuse of the container, for example, the corrosion, paint failure or destruction of markings that accompanies damage is also considered “|damage”.

Non-conforming repair is a condition resulting from a repair not performed in accordance with IICL (Institute of International Container Lessors) recommended repair methods. To determine if previous repairs are non-conforming, inspectors should refer to the latest editions of the Repair Manual for Steel Freight Containers and the ICS (International Chamber of Shipping) /IICL General Guide for Container Cleaning. Non-conforming repair is often called “|improper repair" by the container industry.

Criteria for Repairworthiness

IICL has developed criteria that describe the limits of damage or wear which can be accepted without repair. Damage or wear which exceeds these limits is called repairworthy damage or wear and must be repaired. Damage or wear that falls within the limits of those criteria and thus does not have to be repaired in its own right is called non-repairworthy damage or wear.

An inspector must be conscious not only of damage-related repairworthy defects, but also of wear-related repairworthy defects. As wear is the inevitable result of exposure of the container to conditions for which it was designed, early detection and prompt correction of wear-related defects will avoid more costly repairs later.

In addition to damage and wear conditions, previously performed repairs must be inspected. Inspectors should be familiar with the latest editions of IICL repair manuals. Depending upon the condition observed, i.e., the nature of the non-conformance, whether the repair presents a safety hazard, and owner's policies, some non-conforming repairs may be considered unacceptable and must be corrected by repairing again, while others may be considered acceptable, requiring no corrective action. The container owners should be consulted to determine if a particular non-conforming repair should be corrected. Nevertheless, any non-conforming repair which fails to restore the container to a condition within acceptable limits of damage or wear should be corrected.

Note that inspection for wear and non-conforming repair is essential.

Role of the Inspector

The inspector is the most important judge of container condition. On all inbound containers, it is the inspector's responsibility to ensure that any repairworthy damage is found and designated for repair and that the appropriate extent and method of repair is indicated to correct the damage. The inspector should identify wear and deterioration conditions, so that timely repairs can be made which maximize the useful life of the container.

The inspector should also examine all outbound containers in order to ensure that equipment release has been completely and correctly repaired and that no repairworthy damage or wear remains. Containers in service should be examined to ensure that they continue to be safe and serviceable.

It is important that the inspector report to the owner instances of unusual damage or wear defects and any non-conforming repairs. This includes checking for any modifications made that are not authorized by the owner. All these should be described in detail by the inspector.



Words and Expressions

damage	['dæmɪdʒ]	*n.*	损坏
wear	[weə]	*n.*	磨蚀
conform	[kən'fɔːm]	*v.*	(使)遵照，(使)符合
non-conforming repair			不合格修理
durable	['djʊərəb(ə)l]	*adj.*	耐久的，耐用的，不易损坏的
invulnerable	[ɪn'vʌln(ə)rəb(ə)l]	*adj.*	不会受伤害的
defect	['diːfekt]	*n.*	缺陷，缺损
impact	['ɪmpækt]	*n.*	碰撞，撞击，冲击
abrasion	[ə'breɪʒ(ə)n]	*n.*	擦伤，磨损，磨耗
break	[breɪk]	*n.*	破裂
crack	[kræk]	*n.*	裂缝
cut	[kʌt]	*n.*	断开
tear	[teə]	*n.*	撕裂



hole	[həʊl]	*n.*	孔洞
bend	[bend]	*n.*	弯曲
bow	[bəʊ]	*n.*	弓形
dent	[dent]	*n.*	凹坑
integrity	[ɪn'tegrətɪ]	*n.*	完整，完全
watertight	['wɔ:tətaɪt]	*adj.*	不透水的，水密的，防水的
certification requirement			认证要求
deterioration	[dɪˌtɪərɪə'reɪʃn]	*n.*	磨损，解体
imply	[ɪm'plaɪ]	*vt.*	意味着
note that			注意
corrosion	[kə'rəʊʒ(ə)n]	*n.*	腐蚀，侵蚀
paint failure			油漆表面损坏
in accordance with			依照，按照，依据
institute	['ɪnstɪtju:t]	*n.*	学会，协会
lessor	[le'sɔ:]	*n.*	出租人
recommend	[rekə'mend]	*v.*	推荐，建议
manual	['mænjʊ(ə)l]	*n.*	手册，指南
chamber	['tʃeɪmbə]	*n.*	(非官办的)社团
criterion	[kraɪ'tɪərɪən]	*n.*	(判断的)标准，尺度
repairworthy	[rɪ'peə'wə:ðɪ]	*adj.*	需要修理的
fall within			落在……之内，在……范围内
in one's own right			凭本身的条件
detection	[dɪ'tekʃ(ə)n]	*n.*	发现，发觉，探测
costly	['kɒs(t)lɪ]	*adj.*	昂贵的，价格高的
hazard	['hæzəd]	*n.*	危险，危害物，危险的根源
consult	[kɔn'sʌlt]	*vt.*	征求……的意见，找……商议；查考
nevertheless	[ˌnevəðə'les]	*adv.*	不过，然而
restore	[rɪ'stɔ:]	*vt.*	恢复，修复
restore sth. to …			使恢复到……
inbound	['ɪnbaʊnd]	*adj.*	入境的，入站的
designate	['dezɪgneɪt]	*vt.*	标出，标明，指定
timely	['taɪmlɪ]	*adj.*	及时的；适时的
outbound	['aʊtbaʊnd]	*adj.*	出站的，向外去的
release	[rɪ'li:s]	*n./vt.*	释放，放出
instance	['ɪnst(ə)ns]	*n.*	情况
modification	[ˌmɔdɪfɪ'keɪʃ(ə)n]	*n.*	修改，改造，改装
authorize	['ɔ:θəraɪz]	*vt.*	授权，委托



Notes

1. While containers are built of durable materials, they are not invulnerable to damage or the deteriorating effect of the elements. 尽管集装箱是用耐用材料制成的，仍无法避免构件的损坏或老化。

while 引导让步状语从句 while containers are built of durable materials，表示“虽然……”。状语从句的用法详见第 15 章语法部分。

2. Inspections of containers are made in order to reveal conditions that may be unsafe or which may reduce the usefulness or life of the container. 对集装箱进行检验是为了找出可能的不安全状况或可能降低集装箱使用性能或寿命的状况。

先行词 conditions 后面跟两个定语从句 that may be unsafe 和 which may reduce the usefulness or life of the container，构成双重关系从句。定语从句的用法详见第 14 章语法部分。

3. The user is expected to exercise reasonable care in operating the container. 用户在使用集装箱时要给予应有的重视。

动名词短语 operating the container 作介词 in 的宾语。动名词的用法详见第 6 章语法部分。

4. In general, defects resulting from failure to do so, such as breaks, cracks, cuts, tears, holes, bends, bows, dents, and so on, are considered “damage”. 总之，因未做到这一点所导致的缺陷，例如破损、裂缝、断开、撕裂、孔洞、弯曲、弓形、凹坑等，都被认为是“损坏”。

现在分词短语 resulting from failure to do so 作定语修饰 defects，现在分词短语作定语时，通常放在所修饰的名词之后。现在分词的用法详见第 7 章语法部分。

5. Note that a deteriorative defect is considered to be damage if it results directly from an event of damage or misuse of the container, for example, the corrosion, paint failure or destruction of markings that accompanies damage is also considered “damage”. 要注意假如渐进性缺陷是因某一破坏性事件或集装箱使用不当直接引起的，就被认为是损坏，例如，那些伴随损坏出现的腐蚀、油漆表面损坏或标贴破坏等，也同样被视为“损坏”。

在被动语态的句子 be considered 中，动词不定式 to be damage 构成主语补足语。在定语从句 that accompanies damage 中关系代词 that 作定语从句的主语，从句谓语动词的形式取决于先行词，本句中先行词不是 markings 而是 the corrosion, paint failure or destruction；当 or 连接两个以上主语时，谓语动词应与最靠近的那个主语保持一致，本句中最靠近的主语是 destruction，因此定语从句谓语动词 accompany 单数。不定式用法详见本章语法部分。定语从句的用法详见第 14 章语法部分。主谓一致的用法详见第 3 章语法部分。

6. To determine if previous repairs are non-conforming, inspectors should refer to the latest editions of the Repair Manual for Steel Freight Containers and the ICS/IICL General Guide for Container Cleaning. 要确定以前的修理是否为不合格修理，验箱员应根据《钢制货运集装箱修理指南》及 ICS/IICL 的《集装箱清洗一般指南》最新版本做出判断。

动词不定式 to determine if previous repairs are non-conforming 作状语表示目的。动词不定式放在句首，其所表示的目的更加明显突出。不定式的用法详见本章语法部分。



7. Depending upon the condition observed, i.e., the nature of the non-conformance, whether the repair presents a safety hazard, and owner's policies, some non-conforming repairs may be considered unacceptable and must be corrected by repairing again, while others may be considered acceptable, requiring no corrective action. 根据观察到的不同情况，即不合格的性质、其是否对安全构成威胁以及箱主的决定，一些不合格修理可能是不可接受的，必须重修进行校正，而另一些可能是可以接受的，不需校正。

现在分词 depending upon the condition observed, i.e., the nature of the non-conformance, whether the repair presents a safety hazard, and owner's policies 作状语，表示方式；现在分词 requiring no corrective action 作状语，表示结果。现在分词的用法详见第 7 章语法部分。

8. On all inbound containers, it is the inspector's responsibility to ensure that any repairworthy damage is found and designated for repair and that the appropriate extent and method of repair is indicated to correct the damage. 对于运抵集装箱，验箱员的职责是要保证发现并标出所有需要修理的损坏，以便进行修理，他们还要确保标出的修理范围和方法适当，以修复那些损坏之处。

作主语的不定式短语 to ensure that any repairworthy damage is found and designated for repair and that the appropriate extent and method of repair is indicated to correct the damage 较长，因此用 it 作形式主语，而把真正的主语放在后面。不定式动词 ensure 带两个 that 引导的宾语从句，第一个 that 可省略，第二个 that 不能省略，以免引起歧义。不定式用法详见本章语法部分。宾语从句的用法详见第 11 章语法部分。

9. The inspector should identify wear and deterioration conditions, so that timely repairs can be made which maximize the useful life of the container. 验箱员应鉴别磨蚀和老化情况，以便进行及时修理，最大限度地延长集装箱的使用寿命。

so that 引导目的状语从句只能放在主句之后。目的状语从句中修饰 repairs 的定语从句 which maximize the useful life of the container 较长，为了保持句子平衡，将其移至句末。状语从句的用法详见第 15 章语法部分。定语从句的用法详见第 14 章语法部分。

10. It is important that the inspector report to the owner instances of unusual damage or wear defects and any non-conforming repairs. 验箱员发现非同寻常的损坏及磨蚀缺陷或任何不合格修理后，要向箱主报告，这是很重要的。

在 It's important that…句型中，that 引导的主语从句用虚拟语气 should+动词原形，其中 should 可以省略。虚拟语气的用法详见第 2 章语法部分。

11. This includes checking for any modifications made that are not authorized by the owner. 这当中也包括检验非经箱主授权而进行的改动。

动词 include 后面只能用动名词 checking 作宾语，不能用动词不定式 to check。动名词的用法详见第 6 章语法部分。



Exercises

I. 用中文或英文回答问题

1. 集装箱上可能存在的缺陷有哪几种？

2．什么是损坏？

3．什么是磨蚀？

4．什么是不合格修理？

5．所有的损坏或磨蚀都需要修理吗？什么样的损坏或磨蚀必须修理？

6．所有的不合格修理都需要校正吗？什么样的不合格修理必须校正？

7．检验运抵的集装箱的主要作用是什么？

8．检验即将运离的集装箱的主要作用是什么？

II. 英译汉

1．crack

2．paint failure

3．certification requirement

4．inbound container/outbound container

5．IICL

6．ICS

III. 汉译英

1．损坏

2．弯曲

3．弓形

4．凹坑

5．磨蚀

6．不合格修理/不恰当的修理



Grammar Concerned

动词不定式

动词不定式是一种非谓语动词，其形式是“to+动词原形”，to 是不定式符号，无词义。

不定式的形式

动词不定式保留动词的某些特征，如果动词不定式是及物的，须有宾语；动词不定式可以被状语修饰。动词不定式加上相关成分就构成不定式短语。

(1) He wants to study Japanese. 他想学习日语。

(2) The rain continued to fall heavily. 雨还是下得很大。

动词不定式有 3 种时态形式：一般式 to do；进行式 to be doing；完成式 to have done。

1．动词不定式一般式可表示与谓语动词的动作同时(或几乎同时)发生。

(1) I saw him go out. 我看见他出去了。

(2) We're happy to have you on our side. 有你支持我们很高兴。

不定式一般式也可在谓语动词的动作之后发生。

(1) They invited me to have dinner with them. 他们邀请我和他们一起吃晚饭。

(2) The boy said he wanted to be a scientist. 这男孩说他想做一个科学家。

2．动词不定式进行式表示谓语动词的动作发生时，不定式动作正在进行。

(1) He pretended to be doing his homework when he heard his father's sound. 他听见父亲的声音，假装正在做作业。

(2) When he came in, I happened to be sleeping in bed. 他进来时，碰巧我正在床上睡觉。

3．动词不定式完成式表示在谓语动词的动作之前发生。

(1) I'm sorry to have kept you waiting so long. 我很抱歉让你等了这么久。

(2) The battery appears to have run down. 这个电池好像已经用完了。

完成式和 plan, hope, expect, be, intend, mean, wish 等动词的过去时连用，表示过去没有实现的事情，同样的意思也可用上述动词的过去完成时加动词不定式的一般式来表达。另外还有 should/would like/love, were to+完成式，这个结构也表示“本打算/想/计划……”的意思。

(1) He planned to have gone abroad last week. 他原计划上周出国的。

(2) I'd like to have been offered the job and(to have been)given the opportunity to prove myself. 我真希望(当时)把这个工作给了我，给我个机会让我证明我自己。

(3) The game were to have taken place in Rome. 比赛原计划在罗马举行。

如果不定式的逻辑主语是这个不定式所表示的动作的承受者，不定式一般要用被动形式。动词不定式有两种被动形式：一般式 to be done；完成式 to have been done。

(1) The next thing to be done is to carry away the earth. 下一步要做的事是把土运走。

(2) What's to be done next? 下一步做什么？

(3) No harm seems to have been done. 似乎并没有造成损害。

(4) You're lucky to have been accepted. 你很幸运已经被接受了。

动词不定式的否定形式是在 to 前面加上 not, never 等否定词。

(1) He decided not to open the door. 他决定不开门。

(2) The teacher warned the pupils not to go skating on thin ice. 教师警告学生不要在薄冰上滑冰。

不定式的用法

动词不定式具有名词、形容词和副词的特征，所以在句子中可以作主语、宾语、表语、定语、状语和宾语补足语。

一、作主语。

(1) To be a container inspector requires a basic knowledge of the design and construction of containers. 要成为验箱员，就必须掌握有关集装箱设计和构造的基本知识。

(2) Never to offend anyone is my principle. 永远不得罪任何人就是我的原则。

作主语的动词不定式或不定式短语用词较多时，可以用 it 作形式主语，而把真正的主语放在后面。

(1) It is the inspector's responsibility to ensure (that) any repairworthy damage is found and designated for repair and that the appropriate extent and method of repair is indicated to correct the damage. 验箱员的职责是要保证发现并标出所有需要修理的损坏，以便进行修理，他们还要确保标出的修理范围和方法适当，以修复那些损坏之处。

(2) It took me half an hour to work out this problem. 解出这道题花了我半个小时的时间。

二、作宾语。

某些及物动词只能用动词不定式作直接宾语：afford (负担得起), agree, arrange, ask, beg, choose, claim (声称), consent (同意), dare, decide, desire, demand, determine, expect, fail, help, hope, long (渴望), manage (设法), offer (主动提出), prepare, pretend, promise, refuse, seek, seem, tend (倾向), threaten (威胁), undertake (承担), volunteer (志愿), want, wish, would like 等。

(1) I wish to take this opportunity to make up for the lessons I have missed. 我想趁此机会把拉下的课补上。

(2) Teachers and students managed to set up a laboratory. 师生设法修建了一个实验室。

help + (to) do，to 可以省略。

不定式作 consider, feel, find, make, think 等动词的宾语而后面还有宾语补足语时，通常用 it 作形式宾语，而把真正的宾语不定式短语放在补足语后面。

(1) Certain conditions can make it difficult to measure some types of damage and therefore to determine if repair is required. 某些情况可能造成难以测量某些类型的损坏，进而难以确定是否需要修理。

(2) Do you consider it right to send our doctors over? 你觉得派我们的医生去对吗？

动词不定式可以作某些形容词的宾语，这些形容词包括 able, anxious (急于), careful, certain, clever, cruel, determined, difficult, eager, easy, fit, foolish, free, hard, possible, ready, right, sure, unable, willing, worthy, wrong 等。

(1) The better trained and the more experienced are those involved, the better will they be able to assess the transport risks. 相关人员越是训练有素、经验丰富，就能越好地评估运输风险。

(2) Be careful not to catch cold. 小心别感冒。



三、作表语。

(1) Standard practice is to run the reference line over the full length or height of the damaged component. 标准做法是令基准线跨过损坏部件的整个长度或高度。

(2) His only desire was to be useful to the country. 他唯一的愿望是做一个对国家有用的人。

四、作定语。

动词不定式短语作定语时，表示将要发生的动作，放在被修饰的名词或代词之后。

(1) The characteristics of the substances to be carried determine the material of which the tank is made. 所运载物质的特性决定罐式箱的制造材料。

(2) A container user is in a position to make appropriate preparations for packing and cargo securing and to correctly assess container loading capacity. 集装箱用户能够为装箱和货物栓固做适当准备并正确评估集装箱的装载能力。

(3) There is no one to save him. 没有任何能救他的人。

常用不定式作定语的名词有 ability, agreement, ambition (抱负、野心), anxiety (焦急), attempt (试图), campaign (战役), chance, claim (声称), courage, decision, determination, drive (努力), eagerness (殷切的心情), effort, failure, hope, intention (目的、意图), motive force (动力), movement (运动、协议), need, opportunity, plan, promise, readiness (乐意), refusal, reluctance (勉强、不愿), resolution (决心), tendency (倾向), right (权力), struggle, threat (威胁), time, way, willingness, wish 等。

如果不定式动词是不及物动词，则后面必须加介词。

(1) This is not a pen to write with but to draw with. 这不是写字用的笔而是画画用的笔。

(2) They could not find a place to live in. 他们找不到住的地方。

五、作状语一般在句尾或句首。

1．表示目的。

(1) Considerable effort is taken to avoid shipping damage or to limit the extent of such damage. 人们进行了相当的努力来避免航运损坏或者限制这种损坏的程度。

(2) They went to the U.S.A. not to study English but to study law and business. 他们去了美国，不是为了学英语，而是为了学法律和商务。

动词不定式放在句首，其所表示的目的更加明显突出。

(1) To determine if previous repairs are non-conforming, inspectors should refer to the latest editions of the Repair Manual for Steel Freight Containers. 要确定以前的修理是否为不合格修理，验箱员应根据《钢制货运集装箱修理指南》最新版本做出判断。

(2) To be a good teacher, one must use good teaching methods. 要成为好的教师一定要有好的教学方法。

2．表示原因。

(1) To hear him talk in that manner, you would think him a foreigner. 他这样说话，你会以为他是外国人。

(2) The old father smiled to know his success. 知道他成功的消息，老父亲笑了。

不定式短语可以和表示情绪的形容词和过去分词连用，说明产生这种情绪的原因，常见的这类形容词和过去分词有 afraid, amazed (感到惊异的), angry, astonished (感到惊讶的),

comfortable, delighted (高兴的), disappointed, fortunate, frightened (感到害怕的), glad, good, happy, lucky, overjoyed (高兴的), pleased, proud, relieved (感到轻松的), sad, shocked (感到惊讶的), sorry, surprised 等。

(1) He feels proud to be on the school football team. 作为校足球队队员他感到很自豪。

(2) You're lucky to have me as your teacher. 有我当你们老师，你们很幸运。

3．表示结果。

不定式做结果状语只限于 learn (得知), find, see, hear, to be told 等。

(1) My grandmother lived to see the birth of my little daughter. 我的祖母活到亲眼看到我的小女儿出生。

(2) A few years later he came home to find that his hometown had greatly changed. 几年后他回到家里，发现故乡的面貌大大地改变了。

only+不定式表示出乎意料的结果。

(1) He returned home from his holiday only to find that his house had been broken into. 他休假回家，却发现他的房子被破门而入了。

(2) I hurried to the post office，only to find it was closed. 我匆忙赶到邮局，不料已经关门了。

六、作宾语补足语。

动词不定式可以作复合宾语中的宾语补足语，需要不定式作宾语补足语的常见动词有 ask, advise, allow, beg, believe, call on (号召), cause, compel (强迫), command (指挥), direct (指导), enable (使……能够), encourage, expect, force (迫使), get (使得), hate, inspire (鼓舞), intend (打算), invite, instruct (指示), know, lead, like, order (命令), permit, persuade (说服), prefer (更喜欢), press (施加压力), remind (提醒), request (请求), teach, tell, urge (敦促), want, warn, wish, would like 等。

(1) The bow causes the panel to fall outside the ISO limit and exceed the IICL tolerance. 弓变使得侧板超出了 ISO 极限尺寸，超出了 ISO＋10mm IICL 公差。

(2) Tony knew his girl friend to be a shy college student. 托尼知道他的女朋友是一个害羞的大学生。

(3) He got someone to repair the door. 他请人修理门。

(4) I would like you to see my parents. 我想要你见见我的父母。

help 后面做宾补的不定式 to 可以省略，也可以保留。

(1) You may as well help me (to)get things straight. 你不妨帮我把事情办好。

(2) She helped the old woman (to) cross the street. 她帮助那位老妇人过街。

有些及物动词的宾语补足语中，动词不定式要省掉 to，一类是使役动词，一类是感官动词：make, have (使), let, look at, see, watch, observe (观察), listen to, hear, feel, notice 等。

(1) Make the past serve the present and foreign things serve China. 古为今用，洋为中用。

(2) We must have someone repair the refrigerator. 我们必须叫人来修电冰箱。

(3) A policeman saw the accident happen. 一位警察目睹了事故发生。

(4) We listened to her talk about her experience abroad. 我们听她讲国外的经历。

hope, demand, suggest 不能跟不定式作宾补。

(1) 误：I hope you to be happy.

正：I hope that you'll be happy. 我希望你快乐。



(2) 误：We demanded them to give us a definite answer.

正：We demanded that they give us a definite answer. 我们要求他们给个确切的答复。

(3) 误：I suggest you to take him seriously.

正：I suggest that you take him seriously. 我建议你要把他当回事。

七、作主语补足语。

动词接复合宾语的句子可变成被动语态，动词不定式构成主语补足语。

(1) A deteriorative defect is considered to be damage if it results directly from an event of damage or misuse of the container. 假如渐进性缺陷是因某一破坏性事件或集装箱使用不当直接引起的，就被认为是损坏。

(2) An explosion is reported to have happened, and three are known to have been killed. 据报道发生了一起爆炸，已知 3 人被炸死。

make, have, let, see, watch, hear, feel 等动词后面作宾语补足语的动词不定式，在被动语态中要把省去的 to 还原。

(1) She was seen to go out by bike. 有人看见她骑着自行车出去了。

(2) The dog was heard to come in. 有人听见那条狗进来。

八、作插入语。

不定式习惯用语放在句首或句尾作独立成分，这样的短语有 to be sure (当然), to tell you the truth (实话告诉你), to conclude (最后), to begin with (首先), to cut a long story short (简而言之), to go back to the point (回到正题), not to make too much of it (别小题大做), to put it another way (换句话说), to hear him talk (听他说话的口气)，等。

(1) To be frank (with you), this is not satisfactory. 老实(和你)说，这不令人满意。

(2) To be fair, she is an honest girl. 说句公道话，她是一个诚实的姑娘。

不定式复合结构

不定式可以有自己的逻辑主语。所谓逻辑主语，就是指非谓语动词等动作的执行者。由于非谓语动词等带有动词的特征，但又不是谓语动词，所以这个动作的执行者就不能称为主语，而在逻辑上又是这个动作的执行者，所以就称为逻辑主语。不定式的前面用 for 引导名词或代词宾格表示不定式的逻辑主语，构成动词不定式复合结构。

一、作主语。

(1) For one to know everything is impossible. 一个人什么都知道是不可能的。

(2) For his brother John to go to sea seems natural. 他兄弟约翰去当水手是很自然的事。

这种结构作主语时，和简单的动词不定式结构一样，常用 it 作形式主语并放在句首，“for +名词(或代词宾格) +不定式”则放在句末。

(1) It’ll be a great shame for you to forget her. 你要是把她忘了，那可太不应该了。

(2) It’s not proper for us not to accept the invitation. 我们不接受邀请不合适。(否定)

描写人的性格和特点的形容词 careless, clever, cruel, foolish, good, kind, naughty 淘气的, nice, polite, right, rude, silly, stupid (傻的), unwise, wise, wrong 等作表语时，不定式的逻辑主语由 of 引出。

(1) It is unwise of you to go to the United States at this time. 你这个时候去美国不明智。

(2) It’s rude of you to say this to her, Jack. 杰克，你对她说这个，很无礼。

“It is+形容词+of sb. +to do sth.”结构强调某人如何如何，可以改写为“sb.+be+形容词+to

do sth.”；而“It is+形容词+for sb. to do sth.”结构强调做某事如何如何。

二、作宾语。

(1) Can you arrange for a car to take us there? 你能安排一辆汽车送我们到那里去吗?

(2) I found it strange for her not to come today. 我发现今天她居然没来，很奇怪。

三、作表语。

(1) These apples are for the guests to eat. 这些苹果是给客人们吃的。

(2) My advice is for you to apologize to her. 我的建议是你向她道歉。

四、作定语。

(1) The order for the army to start has been given. 已经发出了让部队出发的命令。

(2) The power for science to serve mankind is limitless. 科学为人类服务的力量是无穷的。

五、作状语。

The policeman blew his whistle for the carts to stop. 警察吹哨要那几辆大车停下来。

不定式疑问形式

疑问代词 who, whom, whose, what, which；疑问副词 when, where, how, why；还包括 whether，后面加动词不定式，可在句子中作主语、宾语、介词宾语和表语等成分。

一、作主语。

(1) How to live a happy life is a difficult question to answer. 怎样过幸福生活是个很难回答的问题。

(2) It has not yet been decided when and where to discuss her resignation. 何时何地讨论她的辞职还没定。

二、作宾语。

常用这种结构作宾语的动词有 ask, advise, consider, decide, discover, discuss, explain, find out (查明), forget, guess, inquire (打听), know, learn, remember, see(=understand), settle(=decide), show, tell(=know), teach, think, understand, wonder 等。

(1) Following are principles which must be followed in determining when and how much to repair. 以下是在确定何时进行修理以及修理的范围时必须遵照的原则。

(2) He can’t decide what time to leave or whether to leave at all. 他不能决定何时离开或者到底是否离开。

双宾语及物动词 tell, inform, show, advise, ask, teach 等，也可用这个结构作直接宾语。

(1) Please inform me where to get the tickets. 请告诉我到哪里去弄票。

(2) The salesman told him which switch to turn on first. 售货员告诉他先开哪个开关。

作介词宾语。

(1) He thought a lot about how to improve his English pronunciation. 他对如何提高英语发音水平想得很多。

(2) She asked my suggestion just now about where to go for her holidays. 关于去哪里度假，她刚才征求了我的意见。

三、做表语。

(1) The question is which of the methods to adopt. 问题是采取这些方法中的哪一个。

(2) The problem is whom to choose for the position. 问题是这个位置选谁。



四、做定语。

(1) He offered me some hot coffee with which to refresh me spirit (=to refresh me spirit with). 他给我提供了点热咖啡提提神。

(2) Nobel began to seek ways in which to make the explosive safer to handle. 诺贝尔开始寻找使炸药操作起来更安全的方法。

Extended Reading

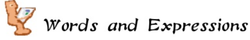
The Need of Inspection

Watching handling operations in a container terminal from a distance reminds one of piling up building blocks. However, the movements of these colored boxes are anything other than child's play. They are the heartbeat of our global economic system. When goods enter the container, they become cargo. Containers transport cargoes, that is to say the assets, generated by the economy. Even if the container looks like a garage, it is simply a cargo unit which may then be loaded onto a means of transport.

A container is a modular element of an entire system of freight movement. The purpose of a freight container is to carry cargo safely and efficiently. A container must be seaworthy and be able to withstand the rigors of road and rail movement and depot and terminal handling in widely varying temperature and climatic conditions. It is important that containers in service be free from any defects which could affect container safety or the ability to carry cargo. Preservation of its dimensions within recommended tolerances and of its structural integrity is crucial to the ability of the system to operate.

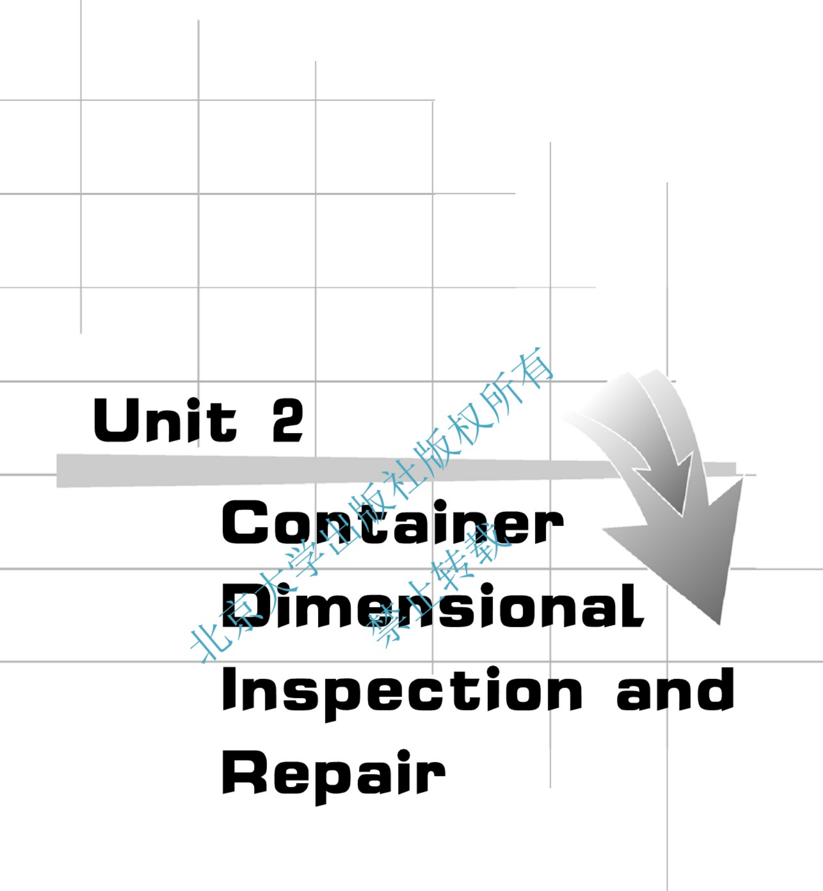
While containers are built of durable materials, they are still subject to damage or the deteriorating effect of the elements. It is necessary to check whether a container is intact both inside and out and whether it is properly sealed, free of odor and functionally operative. Can the doors be opened and closed? Can the container be closed spray-tight after loading? Is the floor area clean, undamaged and free of protruding screws and nails which might damage the new cargo? Are the load securing points intact? Thus, inspections of containers are made in order to reveal conditions which should be corrected to maximize the useful life of the container.

To summarize, it is in long-term interest of all parties to ensure that proper inspections are carried out and that appropriate repairs of acceptable quality are made. However, it is often the easy things that do not receive enough attention and therefore result in considerable loss and damage.



terminal	['tɜːmɪn(ə)l]	*n.*	终点站，枢纽站，码头
remind	[rɪ'maɪnd]	*vt.*	使联想起

remind…of…			使……联想起……
pile up			堆集
building block			积木，砌块
other than			除了
asset	['æset]	*n.*	财产，资产
garage	['gærɑː(d)ʒ]	*n.*	车库，加油站，洗车场
modular	['mɒdjʊlə]	*adj.*	模块化的
seaworthy	['siː'wɜːðɪ]	*adj.*	适于航行的，经得起风浪的
rigor	['rɪgə]	*n.*	严峻，艰苦，严酷
depot	['depəʊ]	*n.*	仓库，库房
preservation	[prezə'veɪʃən]	*n.*	维护，保持
tolerance	['tɒl(ə)r(ə)ns]	*n.*	容忍，(尺寸上可准许的)公差
intact	[ɪn'tækt]	*adj.*	未受损的
seal	[siːl]	*vt.*	封上，密封
functionally	['fʌŋ(k)ʃ(ə)n(ə)lɪ]	*adv.*	功能地
operative	['ɒp(ə)rətɪv]	*adj.*	运转着的，起作用的
spray-tight	['spreɪtaɪt]	*adj.*	防溅的
protrude	[prə'truːd]	*v.*	伸出，突出
screw	[skruː]	*n.*	螺钉，螺丝
nail	[neɪl]	*n.*	钉子，指甲，趾甲



Unit 2

Container Dimensional Inspection and Repair

Chapter 6

Criteria for Repairworthy Damage and Wear

Lead-in

The most difficult part of an inspector's job is to distinguish between what is acceptable and what is not acceptable, once a defect is identified. This chapter contains tables of criteria that specify the limits of damage or wear which can be accepted without repair.

Container must always be in safe and sound condition. Possibly the most difficult part of an inspection is distinguishing between what is acceptable and what is not acceptable, once a defect has been identified. Table 6.1 through 6.8 contain details of some specific defects that should be checked for during an inspection. The criteria in the tables describe the acceptable limits on damage that, when exceeded, must be repaired. If a defect causes a component to exceed any of the various pertinent limits shown in these tables, the defect should be repaired. Any defects that threaten the structural integrity of the container should also be repaired.

Table 6.1 Rail Inspection Criteria

Component	Condition	Action Required
All rails, including side rails, headers and sills	Holed, cut, torn or cracked; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation, such as bend, bow, dent, etc.	If exceeding ISO dimensional tolerances, see Table 6.8
Top and bottom rails	Bend or dent within 250mm(10 in) of a corner fitting	The weld or other connection to the corner fitting must be carefully examined and repaired if it gives any evidence of break, cut, tear, crack, hole or other damage
Front headers	Any deformation such as bend, bow, dent, etc., EXPECT on header extension plate or corner protection plate	If more than 25mm (1 in) deep, REPAIR
Rear headers	Any deformation such as bend, bow, dent, etc., EXPECT on header extension plate or corner protection plate	If more than 35mm (1-3/8 in) deep, REPAIR
Door headers and sills	Interference with door closure, securement and/or weathertightness	REPAIR

Table 6.2 Post Inspection Criteria

Component	Condition	Action Required
All corner posts, including J-bar	Holed, cut or torn; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation such as bend, bow, dent, etc.	If exceeding ISO dimensional tolerances, see Table 6.8
	Any single deformation such as bend, bow, dent, etc.	If more than 25mm (1 in), regardless of length or location, REPAIR.
	Two (2) or more dents on a single post	If each is more than 15mm (9/16 in)deep, regardless of length or location, REPAIR
Rear corner posts	Any deformation causing interference with door operation, securement or watertightness	REPAIR
J-bars	Any deformation such as bend, bow, dent, etc.	Door must be able to open fully (270°). If door operation is impaired, REPAIR



Table 6.3 Side/Front Panel Inspection Criteria

Component	Condition	Action Required
All side/front panels	Holed, cut, torn or cracked; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation such as bend, dent, etc., on a flat portion of a marking panel, or on an-inboard or outboard face of a corrugation	If more than 35mm (1-3/8 in) deep, REPAIR
	Any bow involving the length or height of a wall	If internal dimensions are reduced by more than 50mm (2 in), REPAIR

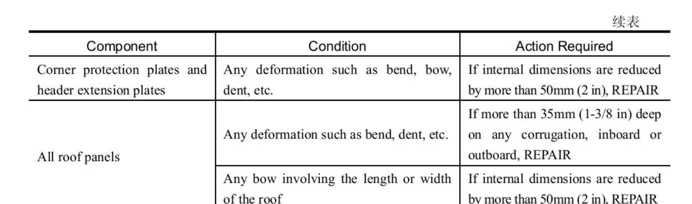
Table 6.4 Door Inspection Criteria

Component	Condition	Action Required
Door assembly, including hardware	Holed, cut, torn or cracked; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation such as bend, bow, dent, etc.	If door operation or securement is impaired, REPAIR OR if exceeding ISO dimensional tolerances, see Table 6.8
	Seized, frozen or stiff	If door operation or securement is impaired, REPAIR
	Lack of watertightness	REPAIR
Door panels	Any deformation such as bend, dent, etc.	If more than 35mm (1-3/8 in) deep, REPAIR
	Any bow involving the length or height of a panel	If internal dimensions are reduced more than 50mm (2 in) at any point, REPAIR
Door gaskets	Loose or missing	REPAIR
	Cut, torn, cracked or burned	If not light-tight AND water-tight, REPAIR

Table 6.5 Roof Inspection Criteria

Component	Condition	Action Required
Roof panels, header extension plates, corner protection plates and roof bows	Holed, cut, torn or cracked; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation such as bend, bow, dent, etc.	If exceeding ISO dimensional tolerances, Table 6.8
Roof bows	Any deformation such as bend, bow, dent, etc.	If more than 50mm (2 in) in any direction, REPAIR

续表



Component	Condition	Action Required
Corner protection plates and header extension plates	Any deformation such as bend, bow, dent, etc.	If internal dimensions are reduced by more than 50mm (2 in), REPAIR
All roof panels	Any deformation such as bend, dent, etc.	If more than 35mm (1-3/8 in) deep on any corrugation, inboard or outboard, REPAIR
	Any bow involving the length or width of the roof	If internal dimensions are reduced by more than 50mm (2 in), REPAIR

Table 6.6　Floor Inspection Criteria

Component	Condition	Action Required
Floor, including threshold plate and center spacer	Holed	If light leaks, regardless of diameter of hole, REPAIR
	Broken component and/or weld; missing, loose or protruding fasteners NOTE: No repair is necessary to cracked or broken welds of center spacers if light does not leak	REPAIR
Threshold plate	Bent upwards	If more than 5mm (3/16 in), REPAIR

Table 6.7　Understructure Inspection Criteria

Component	Condition	Action Required
Crossmembers and gooseneck tunnel components.	Holed, torn, cut and cracked; broken component and/or weld	REPAIR
	Missing or loose parts or fasteners	REPAIR
	Any deformation such as bend, bow, dent, etc.	If exceeding ISO dimensional tolerances, see Table 6.8
Gooseneck tunnel assembly	Any deformation such as bend, bow, dent, etc.	If more than 50mm (2 in), REPAIR

Table 6.8　Miscellaneous Inspection Criteria

Component	Condition	Action Required
Corner fittings and their weld attachments	Cracked, loose, broken; apertures outside ISO dimensional tolerances	REPAIR
End frame components (corner posts, front panel, doors, headers, sills, corner fittings)	Any deformation such as bend, bow, dent, etc. that affects other ISO required dimensions	If deformation exceeds ISO Tolerances plus 5mm (3/16 in), REPAIR
Entire container, EXCEPT end frame components	Any deformation such as bend, bow, dent, etc. that affects other ISO required dimensions	If deformation exceeds ISO Tolerances plus 10mm (3/8 in), REPAIR



续表

Component	Condition	Action Required
Entire container	Any deformation such as bend, bow, dent, etc. that affects ISO required diagonal dimensions between corner fitting apertures	If deformation exceeds ISO tolerances, REPAIR
Interior floor surface	Nails with heads above top of floor	REPAIR
Lashing fittings	Broken parts and/or welds; missing or loose parts or fasteners	REPAIR
	Bent	If more than 50mm(2 in) into the interior space of the container, REPAIR
Marking plates	Loose, broken, missing plate or fasteners; illegible data	REPAIR
Markings required by regulations International standard or owner	Missing, loose or defaced	REPAIR

To determine whether to repair damage which may affect ISO dimensions, IICL permits an additional tolerance beyond the ISO tolerance, i.e., 5mm (3/16 in) for end frame components (corner posts, front panel, doors [including door hardware], headers, sills, and corner fittings), and 10mm (3/8 in) for all other components. However, the ISO limits must be followed for the diagonal measurements between corner fitting apertures (including dimensions D_1-D_6, K_1, K_2, P and S shown in Fig.3.9); there is no additional IICL tolerance.

Table 6.9 shows the container dimensions defined by ISO and the IICL limits of acceptability. If the dimension measures more than the IICL maximum limits, or less than the IICL minimum limits for these dimensions, repair is required.

Table 6.9 IICL Limits For Container Dimensions

Components	IICL+ISO Damage Limits
Top side rails、Side panels	OUTWARDS：Maximum 10mm (3/8 in) beyond plane of side surfaces of corner fittings UPWARDS (rails)：Maximum 4mm (5/32 in) above plane of upper surface of top corner fittings
Bottom side rails	OUTWARDS：Maximum 10mm (3/8 in) beyond plane of side surfaces of corner fittings DOWNWARDS：Not below the plane of the lower surface of the bottom corner fittings.
Front and door headers、Front and door panels	OUTWARDS：Maximum 5mm (3/16 in) beyond plane of end surfaces of corner fittings UPWARDS (headers)：Maximum 4mm (5/32 in) above plane of upper surface of top corner fittings
Front and door sills (20' container)、Door sill (40' container)	OUTWARDS：Maximum 5mm (3/16 in) beyond plane of end surfaces of corner fittings DOWNWARDS：Not below the plane of the lower surface of the bottom corner fittings.

续表

Components	IICL+ISO Damage Limits
Front sill (40' container)	OUTWARDS：Sill face must be at least 1mm (1/32 in) behind plane of end surfaces of corner fittings DOWNWARDS：Not below the plane of the lower surface of the bottom corner fittings.
Corner posts	INWARDS：Follow IICL criteria in Table 6.2 [25mm (1 in) maximum, or 15mm [9/16 in] maximum for 2 for more dents] OUTWARDS: Maximum 5mm (3/16 in) beyond plane of either end surface or side surfaces of corner fittings
Roof panels	DOWNWARDS：Follow IICL criteria in Table 6.5 [25mm (1 in) maximum]. UPWARDS：Maximum 4mm (5/32 in) above plane of upper surface of top corner fittings.
Gooseneck tunnel	LENGTH L: Minimum 3,140mm Maximum 3,510mm WIDTH of tunnel opening X: Minimum 1,019mm Maximum1,042mm HEIGHT of tunnel opening B: Minimum 107mm Maximum130mm
Door opening	WIDTH: Minimum 2,281mm (89+13/16 in) HEIGHT: 8'6" high container: Minimum 2,256mm 9'6" high container: Minimum 2,560mm

Words and Expressions

sound	[saʊnd]	*adj.*	可靠的，稳固的
pertinent	['pɜːtɪnənt]	*adj.*	相关的，有关的
weld	[weld]	*n.*	焊接，焊接点，焊缝
		v.	焊接，焊牢
fasten	['fɑːs(ə)n]	*v.*	拴紧，扎牢，紧固
deformation	[ˌdiːfɔː'meɪʃ(ə)n]	*n.*	变形
interference	[ɪntə'fɪər(ə)ns]	*n.*	妨碍，干扰
weathertight	['weθətaɪt]	*adj.*	防风雨的，抗风雨的
inboard	['ɪnbɔːd]	*adj.*	内侧的
outboard	['aʊtbɔːd]	*adj.*	外侧的
assembly	[ə'semblɪ]	*n.*	组(合)件
hardware	['hɑːdweə]	*n.*	计算机硬件，金属构件
impair	[ɪm'peə]	*vt.*	损害，削弱
stiff	[stɪf]	*adj.*	不灵活的，不易活动的
light-tight	['laɪttaɪt]	*adj.*	遮光的，不透光的
leak	[liːk]	*v.*	漏，渗漏



diameter	[daɪ'æmɪtə]	*n.*	直径
miscellaneous	[ˌmɪsə'leɪnjəs]	*adj.*	混杂的，其他的
illegible	[ɪ'ledʒɪb(ə)l]	*adj.*	(字迹)难以辨认的；模糊不清的
deface	[dɪ'feɪs]	*vt.*	损坏，损伤……的外表
plane	[pleɪn]	*n.*	面，平面



Notes

1. Possibly the most difficult part of an inspection is distinguishing between what is acceptable and what is not acceptable, once a defect has been identified. 验箱的最困难之处也许是在发现一个缺陷后确定其是否可以接受。

动名词 distinguishing 作表语。两个由疑问词 what 引导的宾语从句作介词结构 between…and…的宾语。once 引导时间状语从句表示"一旦……"。动名词用法详见本章语法部分。宾语从句的用法详见第 11 章语法部分。状语从句的用法详见第 15 章语法部分。

2. The criteria in the tables describe the acceptable limits on damage that, when exceeded, must be repaired. 表中的标准规定了损坏允许极限，超出此极限，就必须修理。

分词作状语时，分词短语之前可用 when 或 while 等连词或介词。本句中过去分词 exceeded 作状语，之前用了连词 when。过去分词的用法详见第 8 章语法部分。



Exercises

用中文或英文回答问题

1．门楣上有一处 28mm 的凹陷，需不需要修理，并说明根据。

2．后角柱弯曲，变形量 27mm，需不需要修理，并说明根据。

3．前端板波纹内凹面上有一处向外凸 30mm，需不需要修理，并说明根据。

4．箱门很紧影响活动，需不需要修理，并说明根据。

5．门封条丢失，需不需要修理，并说明根据。

6．顶板有一处向下凹陷 36mm，需不需要修理，并说明根据。

7．胶合地板中梁的焊缝有裂缝，需不需要修理，并说明根据。

8．地板上钉有一个钉子，需不需要修理，并说明根据。

9．标志牌数据模糊，需不需要修理，并说明根据。

10．侧板向外发生弓变，超出角件侧面所在平面 5mm，需不需要修理，并说明根据。

Grammar Concerned

动名词

动名词由动词原形加词尾 ing 构成。

动名词的形式

动名词仍保留动词的一般特征，可以跟宾语，可以被状语修饰，构成动名词短语。

(1) I have finished repairing that machine. 我修完那台机器了。

(2) They have started working in the apple-orchard. 他们已经开始在苹果园里劳动了。

动名词的否定形式由 not, never 等否定词加动名词组成。

(1) Trying without success is better than not trying at all. 试验没有成功也比不试验好。

(2) He hated himself for not having worked hard. 他悔恨自己没有用功。

动名词有两种时态：一般式 writing；完成式 having written。

1．一般式 writing 所表示的动作与谓语动词表示的动作同时发生，或在谓语动词表示的动作之后。

(1) Children enjoy watching colour TV. 儿童喜欢看彩色电视。

(2) Would you mind opening the window and letting a little air in? 请你打开窗子，透透气好吗?

下面两句中动名词所表示的动作发生在谓语动词表示的动作之前。

(1) Do you remember cutting rice on the state farm? 你记得在国营农场割水稻的事吗?

(2) I shall never forget seeing Lu Xun for the first time in 1932. 我永远不会忘记 1932 年第一次见到鲁迅的情景。

2．完成式 having written 表示的动作发生在谓语动词表示的动作之前。

(1) I apologize for having broken my promise. 我没有遵守诺言，我道歉。

(2) His leg showed no symptom of having been injured. 他的腿不像受过伤。

当动名词的逻辑主语是动名词动作的对象或承受者时，动名词要用被动语态。动名词有两种被动语态形式：一般式 being written；完成式 having been written。

(1) I could no longer stand being treated like that. 我再也不能忍受被那样对待。

(2) She was proud of having been trained in the U.K. 在英国受过训，她感到自豪。

动名词的用法

动名词可以起名词的作用，在句子中可以作主语、宾语(包括介词宾语)、表语、定语。

一、作主语。

(1) Training and quality control are two key concepts which should play a central part in cargo securing. 培训和质量控制是在货物安全保障中起核心作用的两个关键概念。

(2) It seems that reading English is easier than speaking it. 似乎读英语比说英语容易。

动名词短语用 and 连起来作主语时，谓语用复数形式。

Going abroad for a visit and settling down abroad are two different things. 出国访问和在国外定居是两件不同的事情。



在 It’s no use, It’s useless, It’s (no) good, It’s (not) wise, It’s (not) worthwhile, It’s of great (no, little) importance 等结构中，it 作形式主语，真正的主语动名词放在句末。

(1) It is no use operating on the sick man. He should have been sent here early. 给这个病人做手术已经没用了。本应该早些把他送来。

(2) Is it worthwhile bargaining two hours four two cents? 为两分钱讲价两小时值得吗？

动名词和不定式都可以作主语。一般来说，在表示抽象的、一般的行为时，多用动名词；在表示具体某次动作，特别是将来的动作时，多用不定式。但在 It’s no use (good)，It’s useless 结构中只用动名词作主语。

误：It’s no use to cry over spilt milk.

正：It’s no use crying over spilt milk. 覆水难收。

二、作宾语。

admit, appreciate (感激), avoid, advise, can’t help, celebrate, consider (考虑), complete, contemplate (沉思、打算), defer (推迟), delay (延期), deny, detest (痛恨), discontinue (停止), dislike, dispute (不同意), enjoy, escape, excuse, fancy (想象), feel like (想要), finish, forgive, give up, hinder (阻碍), imagine (想象), include (包括), insist on, keep, mention (提到), mind, miss (错过), object to (反对), pardon (饶恕、原谅), permit, postpone (推迟), practise, prevent, put off (延期), recall (回忆), report, resent (怨恨), resist (抵制、阻止), risk (冒险), suggest, understand 等动词后面只能用动名词作宾语。

(1) This includes checking for any modifications made that are not authorized by the owner. 这当中也包括检验未经箱主授权进行的改动。

(2) I couldn’t risk missing that train. 我可不敢冒误了那趟火车的险。

(3) David suggested selling your dog and car to pay the debt. 戴维建议卖掉你的狗和车抵债。

某些及物动词后既可用动词不定式又可用动名词作直接宾语，意义差别不大：abhor (憎恶), attempt (试图), begin, cannot bear (无法忍受), cannot stand (无法忍受), cease (停止), continue, decline (拒绝), deserve (值得), disdain (蔑视), dread (害怕), endure, intend (打算), learn, loathe (厌恶), neglect (疏忽), omit (省略、忽略), plan, propose (建议), require, scorn (蔑视、瞧不起), start, entail (必须), involve (涉及), necessitate (使成为必要)等。

(1) We began to study English when we were at primary school. 我们在小学时就开始学英语了。

(2) When did you begin learning (to learn) typewriting? 你什么时候开始学打字的?

want, need 之后用动名词时含有被动意思。

(1) Your car needs repairing badly. 你的车急需修理。

(2) My hair needs cutting. 我要理发。

like, love, hate, prefer 等表示喜爱、厌恶的动词后面，可用动名词也可用不定式作宾语。动名词所表示的动作在意义上比较一般和抽象，时间观念不强，不指某一次动作；动词不定式则常表示某个具体动作。

(1) We don’t like talking about people behind their backs. 我们不喜欢背后议论人。

(2) He looked tired and I didn’t like to disturb him. 他看上去很累，我不想打扰他。

动词不定式所表示的动作的逻辑主语常常是句子里的一个名词或代词；动名词所表示的动作的逻辑主语，可能是句子里的名词或代词，也可能指一般的人或物。

(1) She hates to trouble you. 她不愿意麻烦你。

(2) She hates smoking. 她不喜欢吸烟。

当这些词前面有 should 或 would 时，一定要用动词不定式作宾语，表示“想要，愿意，打算”。

(1) Little Jim should love to be taken to the theatre this evening. 小吉姆今晚想要被带去看戏。

(2) I don’t like reading, but I’d like to read a magazine in bed tonight. 我不喜欢看书，但是今天晚上倒想躺在床上看本杂志。

某些动词后可接动词不定式也可接动名词作宾语，但意义变化较大。

1．stop to do sth. 停下来去做另一件事；stop doing sth. 停止做某事。

(1) They stopped to have a look. 他们停下来看看。

(2) As long as you live, your heart never stops beating. 只要你活着，你的心脏就永远不会停止跳动。

2．forget to do sth. 忘记去做某事；forget doing sth. 忘记做过某事。

(1) The light in the office is still on. She forgot to turn it off. 办公室的灯还亮着。她忘记关了。

(2) The light in the office is off. She turned it off, but she forgot turning it off. 办公室的灯没亮。是她关了灯，但她忘记关过灯了。

3．remember to do sth. 记着去做某事；remember doing sth. 记得做过某事。

(1) You must remember to post the letter. 你要记着寄这封信。

(2) Do you remember meeting me at a party last year? 你记得去年一次宴会上见过我吗？

4．regret to do sth. 对尚未做的或正在做的事情表示遗憾；regret doing 对已做的事情表示后悔。

(1) I regret saying that. 我后悔说了那话。

(2) I regret to tell you the following truth. 我非常遗憾地告诉你下面这个事实。

5．try to do sth. 努力去做某事；try doing sth. 做某事试一试。

(1) You must try to do it again. 你必须想方设法再做一次。

(2) Let’s try doing the work in some other way. 咱们用另一种方法做这工作试试。

6．mean to do sth. 打算、意欲做某事；mean doing sth. 意味着做某事。

(1) I didn’t mean to hurt you. I’m sorry. 我不是想伤害你，对不起。

(2) If it means delaying more than a week, I’ll not wait. 如果这意味着拖延一个多星期，我就不等了。

7．go on to do sth. 做了一件事又去做另一件；go on doing sth. 继续做原来的事情。

(1) After he finished his maths, he went on to do his physics. 他做完数学后，接着又做物理。

(2) I hope it won’t go on raining all day long. 我希望这雨别下一天。

动名词短语作介词宾语，尤其是在短语动词后面。

(1) The user is expected to exercise reasonable care in operating the container. 用户在使用集装箱时要给予应有的重视。

(2) Mr. Bush earns his living by teaching. 布什先生以教书为生。

(3) We’re tired of having the same kind of food everyday. 我们对天天吃同样的饭菜感到厌倦。



三、作表语。

(1) Possibly the most difficult part of an inspection is distinguishing between what is acceptable and what is not acceptable, once a defect has been identified. 验箱的最困难之处也许是在发现一个缺陷后确定其是否可以接受。

(2) His favorite hobby is collecting stamps. 他最喜欢的爱好是集邮。

动名词作表语不要与现在进行时混淆。

(1) My job is putting these parts together. 我的事情是把这些部件拼起来。

(2) I am putting these parts together. 我正在把这些部件拼起来。

动名词和不定式都可以作表语，一般来说，在表示抽象的、一般的行为时多用动名词；在表示具体某次动作，特别是将来的动作时多用不定式。

Her present job is teaching music. 她现在的工作是教音乐。

My next job is to teach her the song. 我的下一个任务是教她这首歌。

四、作定语。

(1) The loading hatches or domes are arranged in the roof. The unloading hatches are normally at one of the ends. 装货口或装货顶安装在箱顶。卸货口通常在一端。

(2) Our school built a swimming pool last summer. 我们学校去年夏天修建了一个游泳池。

动名词复合结构

动名词也可以有自己的逻辑主语，就是在动名词短语前面加上物主代词或名词所有格，这种结构在句中可做主语、宾语、表语等。

(1) Linda's coming will do you good. 林达的到来对你有好处。

(2) Please excuse my interrupting you. 请原谅我打断你。

(3) The meeting was put off without his having been consulted. 会议延期并未和他商量。

(4) What made him angry was their laughing. 使他生气的是他们笑了。

在口语中，名词往往不用所有格，代词往往不用物主代词而用宾格人称代词。

(1) I can hardly imagine Peter(Peter's) sailing across the Atlantic Ocean in five days. 我简直不能想象彼得会在 5 天内横渡大西洋。

(2) His father agreed to him becoming an engine-driver. 他父亲同意他做火车司机。

encourage, advise, allow, permit, forbid 的用法

一、后面无宾语时，接动名词 doing 作宾语。

(1) Sorry we don't allow smoking in the lecture room. 对不起，教室里不许抽烟。

(2) The teacher encouraged speaking more English in class. 老师鼓励在课堂上多说英语。

二、接动名词 doing 时，前面可以带自己的逻辑主语。

(1) Paul's mother will forbid his going with you. 保罗的妈妈不会允许他跟你去。

(2) The doctor advised my taking more exercises. 大夫建议我多锻炼。

三、后面有宾语时，接不定式 to do 作宾补。

(1) Refrigerated or heated containers allow goods to be transported irrespective of ambient temperature. 冷藏箱或加热箱使货物可以在各种外界温度下进行运输。

(2) The doctor advised me to take more exercises. 大夫建议我多锻炼。

Extended Reading

Climatic Stresses

As containerization became more popular, first of all industrial, manufactured goods and then also goods of vegetable origin were transported in containers. It did not take long for humidity-related problems to appear.

The air always contains a certain amount of water vapor. The crucial point is that the atmosphere can only contain a certain quantity of water vapor. Once the saturation content is reached, no more water can evaporate.

The saturation content depends on the temperature. The warmer the air is, the more water content it can contain. That is why the moisture in the air is described in terms of relative humidity. A relative humidity of 60% means that air contains 60% of the saturation content. The lower the relative humidity, the more water vapor the air is able to accept.

Many materials such as wood, paper, coffee, cocoa etc. are hygroscopic, i.e. they can take in humidity and then release it again. The process of taking in humidity is known as adsorption and the release of water vapor as desorption. The quantity of water present in such materials is known as the water content. The water content is specified as a percentage relative to the dry weight of the materials.

Desorption continues until the air around the material has reached the equilibrium moisture content. Thus, the higher its water content is, the more water vapor a hygroscopic material releases into the ambient air. In simple terms, we can say that a material with a high water content in a container will generate a high relative humidity while a material with a low water content will generate a correspondingly low relative humidity.

If the air in the container becomes warmer, it automatically becomes relatively drier and can then take up more water vapor from hygroscopic materials. Problems occur when the air that has previously taken in water vapor then cools down. The relative humidity then increases.

A container is a closed space which has its own climate. If the container is airtight and no humidity can penetrate from outside, then its relative humidity depends only on the water content of its cargo and the temperature.

During their voyages, ships frequently pass through a number of different climate zones. As the temperature changes due to the climate, so too does the microclimate in the container. Journeys in a northerly or southerly direction are particularly problematic because the air and water temperature changes very quickly during such voyages. The container climate is even influenced by daily variations in temperature. The term "daily variations in temperature" refers to the changes in temperature affecting the container due to different levels of solar radiation during the course of the day (i.e. day and night).

The temperature is a variable that depends on the transportation route and cannot be influenced. Consequently, the water content of the goods is the only factor that can be regulated in order to control the container climate.

（资料来源：http://www.tis-gdv.de/tis_e/inhalt.html)





Words and Expressions

manufacture	[mænjʊ'fæktʃə]	*vt.*	(大规模)制造
humidity	[hjʊ'mɪdɪtɪ]	*n.*	湿度
amount	[ə'maʊnt]	*n.*	量，数额
vapor	['veɪpə]	*n.*	蒸气
quantity	['kwɔntɪtɪ]	*n.*	量，数量
saturation	[sætʃə'reɪʃ(ə)n]	*n.*	饱和
evaporate	[ɪ'væpəreɪt]	*v.*	(使)蒸发
moisture	['mɒɪstʃə]	*n.*	潮湿，水分
cocoa	['kəʊkəʊ]	*n.*	可可豆；可可粉
hygroscopic	[haɪgrə(ʊ)'skɒpɪk]	*adj.*	(易)吸湿的
adsorption	[æd'sɔːpʃən]	*n.*	吸附，吸水
desorption	[dɪ'sɔːpʃən]	*n.*	脱附，脱水
water content			含水量
percentage	[pə'sentɪdʒ]	*n.*	百分率
equilibrium	[ˌiːkwɪ'lɪbrɪəm]	*n.*	平衡，均衡
penetrate	['penɪtreɪt]	*v.*	渗透，穿透
voyage	['vɒɪɪdʒ]	*n.*	航行，航程
microclimate	['maɪkrə(ʊ)ˌklaɪmət]	*n.*	小气候，微气候
variation	[ˌveərɪ'eɪʃən]	*n.*	变化，变体
solar	['səʊlə]	*adj.*	太阳的
radiation	[reɪdɪ'eɪʃ(ə)n]	*n.*	辐射，辐射能
course	[kɔːs]	*n.*	过程
variable	['veərɪəb(ə)l]	*n.*	变量
thanks to			由于，幸亏
target	['tɑːgɪt]	*n.*	(要达到的)目的，目标
		vt.	瞄准，把……定为目标
manipulate	[mə'nɪpjʊleɪt]	*vt.*	控制，巧妙操纵
storage	['stɔːrɪdʒ]	*n.*	存储，贮藏

Chapter 7

When and How Much to Repair



When applying the criteria detailed in last chapter to determine when and how much to repair, some principles must be followed. Examples demonstrating the use of these principles are also given below.



Determining When and How Much to Repair: General Principles

Following are principles which must be followed in determining when and how much to repair, and some practical examples demonstrating the application of the principles

1. The limits of damage beyond which repair is indicated are based on comparison with the original profiles and strength of the container, not necessarily with the condition of container when received.

E.g., a container is received on-hire with a side panel dent of 30mm (1-3/16 in) depth. When the container is presented for inspection at off-hire, the dent depth has enlarged to 40mm (1-9/16 in). The dent must be repaired, because the original profile has been damaged by 40mm (1-9/16 in), even though only 10mm (3/8 in) was added to the dent present when the container was received. The dent must be repaired to the original profile; a repair of the dent only to its former 30mm (1-3/16 in) size is a non-conforming repair.

2. Damage or wear that measures exactly to a limiting dimension specified in a table of inspection criteria does not have to be repaired. Only damage that exceeds or is greater than the limit must be repaired.

E.g., a container is presented for inspection with two separate side panel dents: one of 35mm (1-3/8in) depth and one of 38mm (1-1/2in). Since the first dent measures the exact limit for non-repairworthy damage, it need not be repaired. The second dent, however, is greater than the limit and therefore requires repair.

3. If more than one criterion covers a damage or wear situation, repair is required when the damage or wear exceeds any one of the criteria limits.

E.g., a side panel is bowed out 35mm (1-3/8 in). Even though the bow falls within the IICL limit for side panel bows, repair is required. This is because the bow causes the panel to fall outside the ISO envelope and exceed the ISO+10mm (3/8 in) IICL tolerance.

4. If damage extends over a number of adjacent components (e.g., upper part of side panel and adjacent top side rail), and the damage to at least one of the components is repairworthy, all the adjacent non-repairworthy components that are damaged must be repaired, even if they themselves are not damaged beyond the criteria limits.

E.g., an impact to an upper edge of the container causes a 12mm (15/32 in) deep dent in the top side rail. At the same time, the adjacent upper portion of the side panel dents inwards by 45mm (1-3/4 in) depth. The two components are adjacent to one another, and failure to repair the rail will jeopardize the success of the panel repair. Both the top side rail and panel must be repaired, even though the 12mm (15/32 in) rail dent falls within the rail dent limit.

5. If repair is necessary, it must restore damages or wears to their original dimensions and profiles, not merely to a less-damaged condition that would not require repair as indicated in the tables of criteria.

E.g., a 50mm (2 in) side panel dent is straightened. After straightening, the panel still retains a 5mm (3/16 in) dent. This is a non-conforming repair and may have to be corrected according to owner's policy

6. Damage initially too minor to repair on its own account (a small scratch, for example) may eventually lead to the development of a repairworthy defect due to wear (the failure of the steel around the scratch due to corrosion).Thus, it may be advisable to correct such non-repairworthy damage under a maintenance program.

Note: If there is conflict in measuring between metric and U.S. Customary dimensions when determining whether or not damage should be repaired, the metric dimension is to take precedence.



Words and Expressions

demonstrate ['demənstreɪt] *v.* (用实例等)说明，解释
on-hire ['ɒnhaɪə] *adv.* 出租，起租
off-hire ['ɒfhaɪə] *adv.* 退租，解租
specify ['spesəfaɪ] *vt.* 具体说明，详细列举
envelope ['envələʊp] *n.* 信封，封套，极限数据
extend [ɪk'stend] *v.* 延伸，扩展
jeopardize ['dʒepədaɪz] *vt.* 危及，危害
retain [rɪ'teɪn] *vt.* 保持；保留
initially [ɪ'nɪʃ(ə)lɪ] *adv.* 最初；开始；首先
on its own account 由于自己本身
scratch [skrætʃ] *n.* 刮痕，划痕
maintenance ['meɪnt(ə)nəns] *n.* 维修，维护
conflict ['kɒnflɪkt] *n.* 冲突，矛盾
metric ['metrɪk] *adj.* 公制的
customary ['kʌstəˌm(ə)rɪ] *adj.* 惯常的，通常的
precedence ['presɪd(ə)ns] *n.* 优先；居先
take precedence (over sth.) 优先(于……)



Notes

1. Following are principles which must be followed in determining when and how much to repair. 以下是在确定何时进行修理以及修理的范围时必须遵照的原则。

疑问副词 when 和 how much 后面加动词不定式 to repair 构成不定式疑问形式，在句子中作 determine 的宾语。不定式的用法详见第 5 章语法部分。

2. The dent must be repaired, because the original profile has been damaged by 40mm (1-9/16 in), even though only 10mm (3/8 in) was added to the dent present when the container was received. 此凹损必须修理，因为虽然与接受该箱时相比，其凹损深度仅增加了 10mm (3/8 英寸)，但与其本来的形状相比较，损坏已达 40mm (1-9/16 英寸)。

even though/even if 引导让步状语从句，表示“即使”。状语从句的用法详见第 15 章语法部分。



3. Since the first dent measures the exact limit for non-repairworthy damage, it need not be repaired. 因为第一个凹坑的测量值正好等于不需要修理的损坏的极限值，所以它不必修理。

since 意为“既然”，表示 the first dent measures the exact limit for non-repairworthy damage 是对方已经知道、比较明显的原因。since 从句可以放在句首也可以放在句尾，经常在句首。状语从句的用法详见第 15 章语法部分。

4. If more than one criterion covers a damage or wear situation, repair is required when the damage or wear exceeds any one of the criteria limits. 如果某一损坏或磨蚀状况受两项以上标准制约，只要超出其中任一标准中的极限值，则必须进行修理。

由 more than one 修饰的单数名词主语 criterion，意义上虽然是复数，但谓语动词用单数 covers。or 连接两个主语 damage 和 wear，谓语动词 exceeds 与最靠近的主语 wear 保持一致。有关主谓一致详见第 3 章语法部分。

5. This is because the bow causes the panel to fall outside the ISO envelope and exceed the ISO+10mm (3/8 in) IICL tolerance. 这是因为弓形变形使得侧板超出了 ISO 极限尺寸，超出了 ISO＋10mm (3/8 英寸) IICL 公差。

动词 cause 接两个动词不定式 to fall outside the ISO envelope 和 to exceed the ISO+10mm (3/8 in) IICL tolerance 作宾语补足语，在第一个不定式前用 to，第二个不定式前的 to 省略。不定式的用法详见第 5 章语法部分。

6. If damage extends over a number of adjacent components, and the damage to at least one of the components is repairworthy, all the adjacent non-repairworthy components that are damaged must be repaired, even if they themselves are not damaged beyond the criteria limits. 如果损坏扩展到几个相邻构件，且其中至少一个构件的损坏需要修理，邻近所有不需要修理的损坏构件也必须修理，即使它们本身并没有损坏到超出标准极限值。

先行词 components 有 all 修饰，当先行词为不定代词 all 或有 all 修饰时，定语从句关系代词只能用 that 而不能用 which。even if/even though 引导让步状语从句，表示“即使”。定语从句的用法详见第 14 章语法部分。状语从句的用法详见第 15 章语法部分。

7. If there is conflict in measuring between metric and U.S. Customary dimensions when determining whether or not damage should be repaired, the metric dimension is to take precedence. 如果在确定损坏是否要修理时，测量中公制与美制尺寸之间有矛盾，要优先采用公制尺寸。

分词做状语时，分词短语之前可用 when 或 while 等连词或介词。本句中现在分词短语 determining whether or not damage should be repaired 作状语，之前用了连词 when。现在分词用法详见本章语法部分。



Exercises

用中文或英文回答问题

1．判断损坏是否需要修理，是与什么相比较？

2．前楣上有一处 25mm 的凹损，需不需要修理，并说明根据。

3．顶板有一处向上凸 33mm，超过顶角件上表面所在平面 8mm，需不需要修理，并说明根据。

4．如果损坏影响到几个相邻构件，怎样判断各个构件是否需要修理？

5．撞击使门槛板向上翘曲 4mm，同时门槛变形影响到箱门水密，这两个构件需不需要修理，并说明根据。

6．一根角柱上有两处凹损，分别是 16mm、23mm，把它们都校正到 10mm 左右小于允许范围，可不可以？

7．为什么有些初始阶段的小缺陷最好要修理？

8．侧板沿箱板长度方向发生弓变，箱内尺寸减少 50.3mm ，即 1.98 in，需不需要修理，并说明根据。

Grammar Concerned

现在分词

分词是一种非谓语动词，它兼有动词和形容词的特征。分词有现在分词和过去分词两种，现在分词由动词原形后加词尾 ing 构成，一般有主动的意思或表示动作正在进行的意思。

一、现在分词的形式。

现在分词仍保持动词的一般特征，可以有自己的宾语或状语，一起构成现在分词短语。

现在分词有两种时态形式：一般式 doing；完成式 having done。

一般式 doing 所表示的动作或状态与谓语动词所表示的动作同时发生，或在谓语动词所表示的动作之前或后发生。

(1) Opening the drawer, he took out his wallet. 他打开抽屉，拿出钱包。

(2) Walking along the sands, Crusoe saw in the sand the mark of a man’s foot. 克鲁索沿着沙滩走的时候，看见沙上有人的脚印。

(3) He came up to me, saying “Glad to see you again.” 他来到我跟前说道：“很高兴又见到你。”

完成式 having done 所表示的动作或状态发生在谓语动词所表示的动作之前。一般式和完成式现在分词都可以表示先后接连发生的动作，当两个动作在时间上有一定的间隔或在可能引起误解的场合时，应该用完成式现在分词表示先发生的动作。

(1) Having drunk two glasses of water, Xiao Ma felt a little better. 小马喝了两杯水，感觉好一些了。



(2) Having brushed his teeth, Mr. Brown came downstairs for breakfast. 布朗先生刷过牙，就下楼来吃早饭。

现在分词的被动语态：一般式 being done；完成式 having been done。

一般式 being done 通常表示“正在被……”的意思。

(1) The bridge being built will be completed next month. 正在修建的那座桥将于下月完成。

(2) Being surrounded，the enemy troops were forced to surrender. 敌军被包围了，被迫投降。

完成式 having been done 强调现在分词表示的动作发生在谓语动词所表示的动作之前。

(1) Having been kept out of the room about half an hour for his returning late, Tom was let in. 汤姆回来晚了，所以被关在门外半小时左右才让他进去。

(2) Having been asked to stay, I couldn’t very well leave. 人家请我留下，我就不好离开了。

现在分词的否定形式由分词短语前面加上 not, never 等否定词构成。

(1) Not fearing the fire, the child touched and got a finger burnt. 小孩儿不知道怕火，用手去摸，把手指烧伤了。

(2) Not having done it right, I tried again. 没有做对，我就又试。

二、现在分词的用法。

作为非谓语动词，现在分词可用作形容词和副词，在句子中作定语、状语、补语和表语。

1．作定语。

作定语用的现在分词如果是单词，通常放在它所修饰的名词之前。如果被修饰的词是 something, anything, everything, nothing 等，则分词放在这些词之后。

(1) Observation of day-to-day practice reveals a frightening lack of knowledge precisely in this area. 观察日常实践就可以知道相关人员在这个领域惊人的无知。

(2) I have got a running nose. 我流鼻涕。

现在分词短语作定语时，通常放在所修饰的名词之后，它的功用相当于定语从句。

(1) In general, defects resulting from failure to do so are considered “damage”. 总之，因未做到这一点所导致的缺陷都被认为是“损坏”。

(2) The woman running after the thief shouted very loudly, “Stop the thief!” 跟着小偷追的妇女大喊：“捉小偷！”

现在分词作定语时，它表示动作正在进行或与谓语动词所表示的动作同时发生或差不多同时发生。如果两个动作在时间上有先后，一般不能用现在分词作定语，而往往用主从复合句结构。

(1) The man who has gone to Shanghai will be back again. 到上海去的那个人会回来的。

(2) The teacher wants to talk to the students who smashed the windows. 老师要找打破了窗子的那个学生谈话。

be 的现在分词 being 不能用作定语。表示这种概念时，也用主从复合句结构。

He has a brother who is a worker. 他有一个当工人的兄弟。

现在分词和动名词作定语的区别如下。

(1) 现在分词用作定语时，分词和它所修饰的名词在逻辑上有主谓关系，可以改为定语从句；动名词用作定语时，和它所修饰的名词在逻辑上没有主谓关系，表示它所修饰的名词的用途，可以改为 for 短语。

① a sleeping child 正在睡觉的孩子

a sleeping car 卧车

② a swimming fish 游泳的鱼

a swimming pool 游泳池

③ the running water 流水

the running track 跑道

④ a reading girl 读书的女孩

a reading course 阅读课程

(2) 现在分词可以置于于被修饰词之前或之后，动名词一般只能置于被修饰词之前。

(3) 现在分词和它所修饰的名词都要重读，动名词所修饰的名词则不必重读。

2. 作状语，表示时间、原因、方式和伴随情况等意义。

(1) 表示时间。

① Seeing the teacher entering the room, the students stood up. 学生们看见老师走进房间，都站了起来。

② Opening the drawer he took out a dictionary. 他打开抽屉，拿出一本词典。

(2) 表示原因。

① Being excited, I couldn't go to sleep. 我兴奋得睡不着觉。

② Thinking that Chinese medicine might help, he went to a hospital of Chinese medicine. 他想中医也许有效，于是到一家中医医院去治病。

(3) 表示方式、伴随情况。

① The goods to be shipped will reach the receiver having suffered the least possible damage. 待运货物将以尽可能小的损坏运抵收货人。

② She entered the classroom, holding a pile of papers in her hand. 她手里拿着一摞论文进了教室。

(4) 表示结果。

① Some non-conforming repairs may be considered acceptable, requiring no corrective action. 一些不合格修理可能是可以接受的，不需校正。

② The child fell, striking head against the door and cutting it. 小孩摔了一跤，头在门上碰破了。

分词作状语时，分词和主句之间可用逗号，分词短语之前可用 when 或 while 等连词或介词。但是分词短语和句子之间不能用并列连词如 but, and，因为并列连词接的是两个并列成分，而分词短语只是全句的一个状语部分。

① There is conflict in measuring between metric and U.S. Customary dimensions when determining whether or not damage should be repaired. 在确定损坏是否要修理时，测量中公制与美制尺寸之间有矛盾。

② She's been quite different since coming back from America. 从美国回来后，她大变了。

③ Unless paying by credit card, please pay in cash. 如果不用信用卡付款，请用现金付。

④ 误：Having been told many times, but he still couldn't understand it.

正：Having been told many times, he still couldn't understand it. 给他讲了许多遍，他还是不懂。



3．作宾语补足语。

作 set, get, have, keep, leave, see, watch, observe, hear, feel, catch, notice, find 等动词的复合宾语中的宾语补足语。

(1) In the dark I felt something very cold moving on my foot. 黑暗之中我感到有个冰冷的东西在我的脚上移动。

(2) Can you get the machine going again? 你能使机器再动起来吗？

感官动词后用现在分词作宾语补足语，表示动作正在进行，目的在于将该动作当时进行的情景呈现给读者，其含义相当于进行时态；用动词不定式作宾语补足语，表示动作的全过程，目的只是陈述事实，仅仅说明发生了这件事。

(1) Did you hear someone knocking at the door? 你刚才听到有人在敲门吗？

(2) I heard him knock three times. 我听到他敲了三下。

(3) We sat two hours and watched the teacher make the experiment. 我们坐了两个小时，看老师做实验。

(4) We passed by the classroom and saw the teacher making the experiment. 我们走过教室，看见老师在做实验。

4．作主语补足语。

上述句子结构变为被动语态时，主语和宾语互换位置，现在分词不动，构成主语补足语。

(1) They were seen walking across the road. 有人看见他们在过马路。

(2) The children were heard singing "I Love Beijing Tian'anmen." 有人听见孩子们在唱"我爱北京天安门"。

5．作表语。

The opera is very moving and instructive. 这个歌剧很动人，且有教育意义。

现在分词作表语与谓语动词的现在进行时形式相似，但两者的意思不一样。

(1) The bed is moving. 床正在移动。

(2) The story is very moving. 这个故事很感人。

6．作插入语。

有的现在分词结构可以独立存在，在句中没有逻辑上的主语，它们往往已经成为习惯用语，在句子中作插入语，如：generally speaking (一般地说), roughly speaking (粗略地说), strictly speaking (严格地说), talking of (谈起), speaking of (谈到)等。

(1) Judging from what you say, he has done a very good job. 从你的话看来，他的工作做得很不错。

(2) Considering that he has been in China for only a year, he speaks Chinese well. 考虑到他到中国才一年，他的中国话讲得很不错了。

动名词与现在分词形式相同但是含义不同：动名词主要表示事情，作主语、宾语、表语、定语；而现在分词则主要表示进行着的动作，作定语、状语、补语、表语。

(1) Eating too much is not good for your health. 吃太多不利于你的健康。

(2) Seeing is believing. 眼见为实。

(3) He ran after a moving bus and got onto it. 他追赶一辆开动的公交并上了车。

(4) His father saw him sitting on some eggs. 他父亲看见他正坐在几个鸡蛋上。

Extended Reading

Humidity Thresholds

There are three humidity thresholds that are crucial for high-quality transportation. The first of these is the corrosion threshold. This is situated at a relative humidity of 40%. At between 40 and 60% relative humidity, ferrous metals are mildly prone to corrosion. At higher levels of humidity, the likelihood of corrosion increases enormously. The solution for goods that are liable to corrosion is to use a separate sealed package containing desiccants which keep the humidity below 40% at all times.

The next threshold is the mold growth threshold at 75% relative humidity. Mold may grow at a relative humidity of 75% or more. This is the most important humidity threshold for the purposes of container transport. The factor regulating moisture in a container is the water content of the goods. Consequently, the water content must be chosen in such a way that the relative humidity cannot rise above 75% during transportation. It is necessary to take account of the daily variations in temperature and the route. All goods have their own specific water content at which transportation can be considered safe depending on both the route and the time of year. One rule of thumb is that a water content which counterbalances an equilibrium moisture content of 60% can be considered safe. When transporting goods that are particularly sensitive to moisture or in cases where extreme temperature fluctuations can be expected, it makes sense to choose a lower water content.

Demanding climatic requirements must be met when transporting or storing goods with a high water content and/or of vegetable origin. One way of preventing damage, for example, is to use passively ventilated containers which have perforated battens for passive ventilation in the floor and roof. If vegetable material cannot be dried to a safe water content then this type of container should be used. Thanks to ventilation measures, it was possible to manipulate the storage atmosphere and prevent damage.

Once the relative humidity reaches 100%, the third and most dangerous threshold, the so-called dew point is reached. If the air cools any further, the water vapor condenses. Water is deposited from the air if the dew point is exceeded in a container, and it then rains in the container, which poses a significant threat to the cargo. If this continues for only a short time then suspended nonwoven fabrics may prove very useful in intercepting the moisture dropping from the top of the container. If it carries on raining for longer then damage to the cargo is a certainty.

(资料来源：http://www.tis-gdv.de/tis_e/inhalt.html)



Words and Expressions

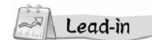
threshold	['θreʃəʊld]	*n.*	门槛；限度，临界值
situate	['sɪtʃʊeɪt]	*vt.*	使位于，使处于



Word	Pronunciation	Part of speech	Meaning
ferrous	['ferəs]	*adj.*	铁的；含铁的
mildly	['maɪldlɪ]	*adv.*	略微
prone	[prəʊn]	*adj.*	易于……的，有……倾向的
be prone to sth.			易于……，有……的倾向
likelihood	['laɪklɪhʊd]	*n.*	可能(性)
enormously	[ɪ'nɔːməslɪ]	*adv.*	极大地
liable	['laɪəb(ə)l]	*adj.*	易遭受……的
be liable to sth.			易于……，可能……
desiccant	['desɪk(ə)nt]	*n.*	干燥剂
mold	[məʊld]	*n.*	霉菌
counterbalance	['kaʊntəˌbæl(ə)ns]	*v.*	(使)平衡，抵消
sensitive	['sensɪtɪv]	*adj.*	敏感的，易受影响的
be sensitive to			对……敏感
fluctuation	[ˌflʌktʃʊ'eɪʃ(ə)n]	*n.*	波动，起伏
passive	['pæsɪv]	*adj.*	无动力源的，被动的
perforate	['pɜːfəreɪt]	*v.*	穿孔
batten	['bæt(ə)n]	*n.*	板条
thanks to			由于，幸亏
manipulate	[mə'nɪpjuleɪt]	*vt.*	控制，巧妙操纵
storage	['stɔːrɪdʒ]	*n.*	存储，贮藏
dew	['djuː]	*n.*	露水，露
dew point			露点
deposit	[dɪ'pɒzɪt]	*v.*	沉淀，沉积
pose	[pəʊz]	*vt.*	提出(问题、建议等)，造成，引起
suspend	[sə'spend]	*v.*	悬，挂
nonwoven	[nɒn'wəʊvən]	*adj.*	无纺的，非织造的
fabric	['fæbrɪk]	*n.*	布，织物
intercept	[ˌɪntə'sept]	*vt.*	拦截，阻止

Chapter 8

General Repair Methods and Principles



It is the inspector's responsibility to ensure that the appropriate method of treatment is indicated to correct the condition. Now that we have known which defects to be repaired, this chapter will provide a brief description of some common repair methods and the general principles of making repairs.



General Repair methods

A proper repair should restore the profile of the damaged component and surrounding areas as close as possible to the original profile. The following section describes some different types of repairs common to all steel components of the container.

1. *Straightening:* To mechanically or hydraulically restore a damaged component as close as possible to its original shape without removal of any portion of the component (although in certain cases adjacent components may have to be unfastened from the component being straightened) (Fig.8.1).

2. *Welding:* To fuse two separated pieces of metal together using heat and a third piece of metal.

3. *Straightening and Welding:* A combination of straightening followed by welding.

4. *Inserting:* To restore a damaged component to its original size, shape and strength by cutting out a portion of the component that is less than the full-profile section and welding or fastening replacement material of the original size, shape and strength in place. The replacement part itself is called an insect (Fig.8.2).





Fig.8.1 Straightening with a jack





Fig.8.2 Corner post insert

5. *Patching:* The same as inserting, except that the replacement material is slightly larger than the material being removed, and its edges overlap the parent material. The replacement part itself is called a patch. NOTE: Patching is only allowed for panels, and may substitute for inserting those components.

6. *Sectioning:* To restore a damaged component to its original size, shape and strength by cutting out a portion of the component that extends through its full profile and welding or fastening replacement material of the original size, shape and strength in place (Fig.8.3). (Because of the flat profile of side, roof and door panels, inserts and sections of these components generally mean the same thing. In the case of panels, therefore, the term insert will be used to cover both inserts and sections. (Fig.8.4))

7. *Replacement:* To remove an entire damaged component and weld or attach a complete new component of the original size and strength. (In some cases, a different shape may be permitted.)

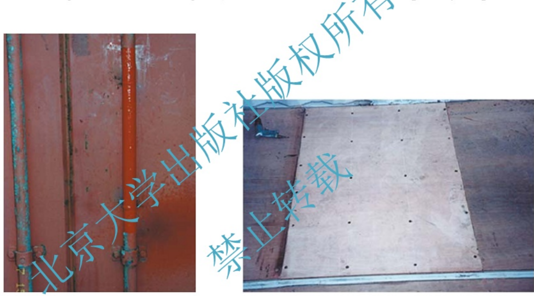


Fig.8.3 Door locking bar section　　Fig.8.4 Plywood panel section/insert

General Principles Involved in Making Repairs

In order to make satisfactory repairs, the following general principles should be observed:

- Determine if the damage requires repair, using criteria in the latest edition of the IICL/ICS Guide for Container Equipment Inspection.
- If the damage requires repair, determine the most economical type of repair that will correct the defect satisfactorily. The repair method selected should be the most economical one possible. Whenever possible, damaged components or portions of components should be straightened, welded, or straightened and welded, rather than removed and replaced with inserts, sections or entire replacement components. Do not perform a repair more extensive or involved than is necessary to achieve a satisfactory result, unless doing so will be more economical to perform than a simpler repair.
- Select the appropriate tools and arrange supports and other fixtures as necessary for the repair job.

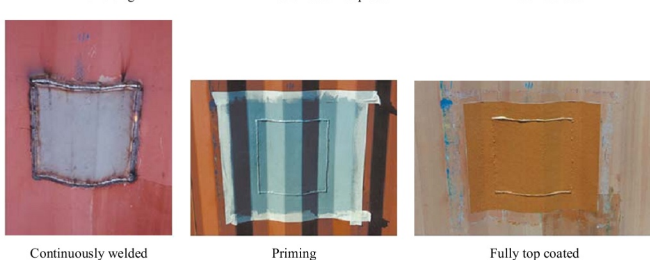


- Temporarily remove, relocate or <u>shield</u> any nearby undamaged components that could become damaged in the repair process, particularly wooden flooring which is highly <u>susceptible</u> to burn damage.
- <u>Proceed with</u> the repair. Ensure that, once painted, the finished repair will be of satisfactory <u>cosmetic</u> appearance. If not, correct any <u>flaws</u> before painting.
- If the paintwork is broken on existing metal, or if a new metal piece is to be installed, prepare the surface of the metal component for painting by cleaning and <u>priming</u>.
- Ensure that any new metal components that will not be exposed after repair is complete are cleaned and primed before covering them.
- Apply <u>top coating</u> (including <u>undercoating</u> for the underside of replacement flooring) to exposed surfaces. Once coating is dry, replace markings required by regulations, ISO standards and owners as necessary.
- Put back any temporarily removed or relocated components into place, and remove any shielding or other temporary fixtures.

The general procedure of maring repairs is shown in the following photos: (Fig.8.5, Fig.8.6, Fig.8.7).



Removing Insert fitted into place Tack welded



Continuously welded Priming Fully top coated

Fig.8.5 Inserting

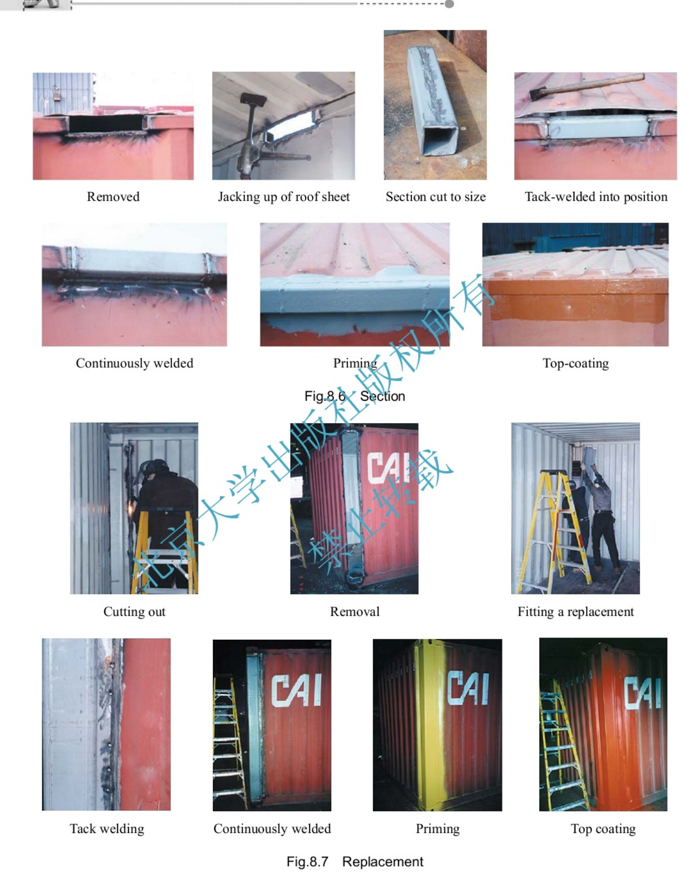


Fig.8.6　Section

Fig.8.7　Replacement

Safety Precautions

IICL expects all repair personnel to observe appropriate safety precautions when repairing



containers. Safety clothing and equipment should be worn, including hard hats, safety goggles, gloves, hearing protection, masks and any other devices that may be needed.

Some of the sealants, adhesives, solvents and lubricants used in container repair may pose environmental and personal safety risks if not handled and disposed of in a proper and responsible manner. Repairers should be well informed about these products and the recommended manner of application and disposal.

Quality Assurance and Management

A quality assurance program assists depot management to ensure consistently satisfactory repair quality. Such a program may include checking materials received for use in repairing containers, verifying that proper preparation, authorization and repair activities take place, and ensuring proper completion of repair orders before the container is returned to service.

Words and Expressions

hydraulically [haɪ'drɔːlɪkəlɪ] *adv.* 水力地，液压地
fuse [fjuːz] *v.* 熔化，熔接
insert ['ɪnsəːt] *n.* 插入物，镶块
[ɪn'səːt] *vt.* 插入，镶块
patch [pætʃ] *n.* 补丁
v. 修补，打补丁
overlap [əʊvə'læp] *v.* 交搭，重叠
substitute ['sʌbstɪtjuːt] *v.* 代替
substitute for 代替，替换
section ['sekʃ(ə)n] *v.* 切成段，部分替换
fixture ['fɪkstʃə] *n.* 固定装置
shield [ʃiːld] *vt.* 用盾保护，掩盖
susceptible [sə'septəb(ə)l] *adj.* 可受影响的，易受影响的
be susceptible to/of 易受……影响
proceed [prə'siːd] *vi.* 开始，(尤指停止后)继续进行
proceed with 继续
cosmetic [kɒz'metɪk] *adj.* 表面的
flaw [flɔː] *n.* 缺陷，毛病
prime [praɪm] *v.* (使)准备好，涂底漆，涂头道漆
coat [kəʊt] *vt.* 给……涂层
top coat 涂表层漆
undercoat ['ʌndəkəʊt] *v.* 涂底层漆
precaution [prɪ'kɔːʃ(ə)n] *n.* 预防措施；防备方法
goggle ['gɒg(ə)l] *n.* [复数]护目镜

glove	[glʌv]	*n.*	分指手套
mask	[mɑːsk]	*n.*	面具，面罩，口罩
device	[dɪ'vaɪs]	*n.*	装置，设备
sealant	['siːlənt]	*n.*	密封材料，密封剂
solvent	['sɒlv(ə)nt]	*n.*	溶剂
lubricant	['luːbrɪk(ə)nt]	*n.*	润滑剂
dispose	[dɪ'spəʊz]	*v.*	处理，处置
dispose of			处理，处理掉
consistently	[kən'sɪstəntlɪ]	*adv.*	一贯地，一致地
verify	['verɪfaɪ]	*vt.*	核实
authorization	[ɔːθəraɪ'zeɪʃ(ə)n]	*n.*	授权，委托



Notes

1. Whenever possible, damaged components or portions of components should be straightened, welded, or straightened and welded, rather than removed and replaced with inserts, sections or entire replacement components. 只要可能，应对损坏的部件或部分构件进行矫直、焊接或矫直并焊接，而不是移除然后以镶块、部分替换件或整个替换件来代替。

whenever 引导时间状语从句 it is possible，表示“每当可能的时候”。状语从句的主语是it，谓语是 be，可省略 it be。状语从句的用法详见第 15 章语法部分。

2. Do not perform a repair more extensive or involved than is necessary to achieve a satisfactory result, unless doing so will be more economical to perform than a simpler repair. 切勿在可达到满意效果的情况下进行更大范围或过度的修理，除非这样做比简单的修理操作起来更经济。

unless 引导条件状语从句 doing so will be more economical to perform than a simpler repair，表示“除非这样做比简单的维修操作起来更经济”。状语从句的用法详见第 15 章语法部分。

3. Ensure that any new metal components that will not be exposed after repair is complete are cleaned and primed before covering them. 确保完成所有修理后，不暴露在外的新加金属构件在盖上以前都进行了清洁并涂上了底漆。

after 引导时间状语从句 repair is complete 表示“在修理完成之后”。状语从句的用法详见第 15 章语法部分。

4. Put back any temporarily removed or relocated components into place, and remove any shielding or other temporary fixtures. 把所有暂时去除或移开的构件放回原处，除去所有遮盖或其他临时固定装置。

过去分词短语 temporarily removed 和过去分词 relocated 作定语修饰 components，当定语的过去分词是单词或者较短的短语，通常放在它所修饰的名词之前。过去分词的用法详见本章语法部分。



5. Some of the sealants, adhesives, solvents and lubricants used in container repair may pose environmental and personal safety risks if not handled and disposed of in a proper and responsible manner. 集装箱修理中使用的某些密封剂、粘合剂、溶剂和润滑剂，如果没有以适当而负责的方式操作和处理，可能对环境和人员安全构成危险。

过去分词短语 used in container repair 作定语修饰 sealants, adhesives, solvents and lubricants，它的功用相当于定语从句 which/that are used in container repair。较长的过去分词短语作定语时，通常放在所修饰的名词之后。过去分词的用法详见本章语法部分。

6. Such a program may include checking materials received for use in repairing containers, verifying that proper preparation, authorization and repair activities take place, and ensuring proper completion of repair orders before the container is returned to service. 这一程序可包括检查修理集装箱所用的材料，保证进行适当的准备、授权和修理作业，并确保在集装箱重新投入使用前正确完成修理程序。

verify 引导的宾语从句中由 and 连接的 3 个名词 preparation、authorization 和 activities 作主语，指的是 3 件不同的事，因此谓语动词用复数形式 take place；如果 and 连接的并列的主语在意义上是指一个单一概念时，谓语动词用单数。有关主谓一致的用法详见第 3 章语法部分。



Exercises

I. 用中文或英文回答问题

选择维修方法的原则是什么？

II. 英译汉并用中文解释名词

1．straightening

2．welding

3．straightening and welding

4．inserting

5．patching

6．sectioning

7．replacement

Grammar Concerned

过去分词

规则动词的过去分词由动词原形后加词尾 ed 构成，不规则动词的过去分词无一定规则，过去分词有被动或动作已经完成的意思。

一、过去分词的形式。

过去分词仍保持动词的一般特征，可以有自己的宾语或状语，一起构成分词短语。

过去分词表示被动和完成等意义，因而没有时态和语态的形式变化，只有一般式。

过去分词的否定形式是在分词短语前面加上 not, never 等否定词构成，也常借助 un-等前缀表示。

The boy was left uncared for. 那孩子无人照管。

二、过去分词的用法。

作为非谓语形式，过去分词可用作形容词和副词，在句子中作定语、状语、补语和表语等。

1．作定语。

作定语的过去分词如果是单词，通常放在它所修饰的名词之前。如果被修饰的词是 something, anything, everything, nothing 等，则分词放在这些词之后。

(1) Put back any temporarily removed or relocated components into place, and remove any shielding or other temporary fixtures. 把所有暂时去除或移开的构件放回原处，除去所有遮盖或其他临时固定装置。

(2) He only gave me a broken glass, so I was very angry with him. 他只给了我一个坏的玻璃杯，所以我很生他的气。

过去分词短语作定语时，通常放在所修饰的名词之后，它的功能相当于定语从句。

(1) Some of the sealants, adhesives, solvents and lubricants used in container repair may pose environmental and personal safety risks. 集装箱修理中使用的某些密封剂、粘合剂、溶剂和润滑剂可能对环境和人员安全构成危险。

(2) Yesterday I met a man called Mr. Black. 昨天我遇见了一个叫布莱克先生的人。

现在分词和过去分词作定语的区别如下。

(1) 在语态上，现在分词表示主动的意思，表示它所修饰的人或物的行为；及物动词的过去分词表示被动的意思，表示它所修饰的人或物是动作的承受者。

① convincing facts 有说服力的事实
convinced audience 被说服了的听众

② driving gears 主动齿轮
driven gears 从动齿轮

(2) 在时间上，现在分词表示动作正在进行；不及物动词的过去分词表示动作已经完成。

① the changing world 正在变化着的世界
the changed world 已经起了变化的世界



② boiling water 沸腾的水

boiled water 开水

2．作状语，表示时间、原因、方式和伴随情况等意义。

(1) 表示时间。

Heated, the metal expands. 金属受热而膨胀。

(2) 表示原因。

Inspired by Dr. Yang's speech, Li Hua and his classmates decided to study physics harder. 李华和他的同学们受到杨博士讲话的鼓舞，决定更加努力学习物理。

(3) 表示方式、伴随情况及结果。

The professor stood there, surrounded by many students. 教授站在那里，许多学生围着他。

分词作状语时，分词短语之前可用 when 或 while 等连词或介词。

① The criteria in the tables describe the acceptable limits on damage that, when exceeded, must be repaired. 表中的标准规定了损坏允许极限，超出此极限，就必须修理。

② Though built before the Second World War, the engine is still in good condition. 尽管是在二战以前制造的，这引擎仍然处于良好状态。

③ Tom will never do this unless compelled. 汤姆永远也不会干这种事，除非被逼无奈。

分词短语在句中可作时间、原因、方式、伴随状语，现在分词的动作和谓语动作同时或几乎同时发生，意思是主动的；而过去分词的动作在谓语动作之前发生，意思是被动的。

① Seeing nobody at home, she decided to leave them a note. 看到没人在家，她决定给他们留个条。

② The secretary worked late into the night, preparing a speech for the president. 秘书工作到晚上很晚，给总统准备一篇演说。

③ Tired of the noise, he closed the window. 他对噪音感到厌烦，所以把窗户关上。

④ Deeply moved, she thanked me again and again. 她深深地受了感动，再三谢我。

3．作宾语补足语。

过去分词可以作 make, set, get, have, keep, leave, see, watch, observe, hear, feel, catch, notice, find 等动词的复合宾语的宾语补足语。

(1) I found my hometown almost completely rebuilt. 我发现故乡几乎全部改建过了。

(2) We must get the television set repaired. 我们必须把电视机修好。

在“have/get+宾语+分词”结构中，现在分词所表示的动作往往是主体“让”“叫”“使”“听任”“允许”客体做的，使客体处于或保持某种状态；过去分词所表示的动作往往是由别人做的，有时不一定是由别人做的，而是表主体的经验，与主体的意志无关。

(1) He had the fire burning day and night. 他让火日夜燃烧着。

(2) We cannot have you wasting time. 我们不许你浪费时间。

(3) They had Jack beaten. 他们叫人打了杰克。

(4) I had my watch stolen yesterday. 昨天我的表被人偷了。

(5) He had his arm broken. 他把手臂折断了。

find 后面只用分词(现在分词和过去分词)作宾补，不用不定式。

误：I found him lie on the ground.

正：I found him lying on the ground. 我发现他正躺在地上。

4．作主语补足语。

上述句子结构变为被动语态时，主语和宾语互换位置，过去分词不动，构成主语补足语。

The boys were seen walking on the grass. 有人看见孩子们在草地上散步。

5．作表语。

常用过去分词作表语的结构有 be worried, be pleased, be tired, get dressed(打扮好), get lost (迷路), get caught (遭遇), become frustrated (沮丧), become interested in 等。

(1) Your job is well done. 你的工作做得好。

(2) He is married. 他已经结婚了。

过去分词作表语与被动语态动词谓语形式相似，但两者的意思不一样：“主—系—表”主要表示状态；而被动语态则表示动作。

(1) The road was completed by the PLA men. 这条路是解放军战士修成的。

(2) The road is completed. 这条路已经筑成。

(3) Her homework was done by her sister. 她的作业是她姐姐做的。

(4) Her homework is well done. 她的作业做得很好。

作表语时，现在分词表示主语所具有的特征，意思是“令人如何”；过去分词表示主语所处的状态，意思是“感到如何”。

(1) His lecture is disappointing. 他的演讲令人失望。

(2) They were all disappointed. 他们都感到失望。

(3) The situation is encouraging. 形势使人鼓舞。

(4) We’re encouraged. 我们感到鼓舞。

Extended Reading

What Can 28,000 Rubber Duckies Lost at Sea Teach Us about Our Oceans?

In 1992, a shipping container containing 28,000 plastic bath toys was lost at sea when it fell overboard on its way from Hong Kong to the United States. No one at the time could have guessed that those same bath toys would still be floating the world’s oceans over 20 years later. Today that flotilla of plastic ducks are being hailed for revolutionizing our understanding of ocean currents, as well as for teaching us a thing or two about plastic pollution in the process.

Since that uncertain day in 1992 when they were unceremoniously abandoned at sea, the yellow ducks have bobbed halfway around the world. Some have washed up on the shores of Hawaii, Alaska, South America, Australia and the Pacific Northwest (Fig.8.8); others have been found frozen in Arctic ice. Still others have somehow made their way as far as Scotland and Newfoundland, in the Atlantic. Perhaps the most famous Floates, though, are the about 2,000 of them that still circulate in the currents of the North Pacific Gyre — a vortex of currents which stretches between Japan, southeast Alaska, Kodiak and the Aleutian Islands that the plight of the duckies helped to identify.



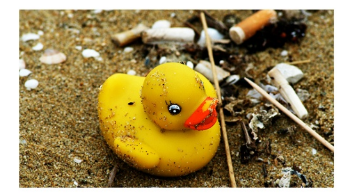


Fig.8.8 A plastic ducky on the beach

The charismatic duckies have even been christened with a name, the "Friendly Floates", by devoted followers who have tracked their progress over the years. "I have a website that people use to send me pictures of the ducks they find on beaches all over the world," said Curtis, a retired oceanographer and Floate enthusiast. "I'm able to tell quickly if they are from this batch. I've had one from the UK which I believe is genuine. A photograph of it was sent to me by a woman judge in Scotland." "We always knew that this gyre existed. But until the ducks came along, we didn't know how long it took to complete a circuit," said Curtis. "Well, now we know exactly how long it takes: about three years."

And if the Friendly Floates are an example for anything else, it's that plastic trash endures for a very long time and that it's a global issue. "The ones washing up in Alaska after 19 years are still in pretty good shape," added Curtis.

(资料来源：http://www.mnn.com/)



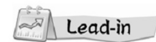
Words and Expressions

Word	Pronunciation	Part of speech	Meaning
ducky	['dʌkɪ]	*n.*	小鸭子
overboard	['əʊvəbɔːd]	*adv.*	向船外
float	[fləʊt]	*v.*	(使)漂浮，(使)漂流
flotilla	[flə'tɪlə]	*n.*	小型船队
hail	[heɪl]	*v.*	打招呼
revolutionize	[ˌrevə'ljuːʃənaɪz]	*v.*	(使)革命化
current	['kʌr(ə)nt]	*n.*	(水，气，电)流
unceremoniously	[ʌnˌserə'məʊnɪəslɪ]	*adv.*	随便地
abandon	[ə'bænd(ə)n]	*vt.*	丢弃
bob	[bɔb]	*v.*	晃动，(使)上下或来回快速移或摆动
halfway	[hɑːf'weɪ]	*adv.*	到一半
Hawaii	[hə'waɪiː]	*n.*	夏威夷岛
Alaska	[ə'læskə]	*n.*	阿拉斯加州
Pacific	[pə'sɪfɪk]	*n.*	太平洋
Arctic	['ɑːktɪk]	*n.*	北极

Word	Pronunciation	Part of speech	Meaning
make one's way			前进
Scotland	['skɔtlənd]	*n.*	苏格兰
Newfoundland	[ˌnjuːfaʊnd'lænd]	*n.*	纽芬兰岛
Atlantic	[æt'læntɪk]	*n.*	大西洋
floate	['fləʊtɪ]	*n.*	飘浮体
circulate	['sɜːkjəleɪt]	*v.*	(使)循环，(使)环流
gyre	['dʒaɪə]	*n.*	回旋，旋涡
vortex	['vɔːteks]	*n.*	旋涡，涡流
stretch	[stretʃ]	*v.*	延伸，展开
Kodiak	['kəʊdɪæk]	*n.*	科迪亚克岛(在阿拉斯加南部)
Aleutian	[ə'luːʃjən]	*n.*	阿留申
plight	[plaɪt]	*n.*	状态，情况
charismatic	[kærɪz'mætɪk]	*adj.*	有神赐超凡能力的
christen	['krɪs(ə)n]	*vt.*	给……取名
track	[træk]	*v.*	跟踪，追踪
oceanographer	[ˌəʊʃɪə'nɒgrəfə]	*n.*	海洋学家
enthusiast	[ɪn'θjuːzɪæst]	*n.*	热心者，热衷于……的人
batch	[bætʃ]	*n.*	一批，一宗
genuine	['dʒenjʊɪn]	*adj.*	真正的，真实的
circuit	['sɜːkɪt]	*n.*	环行
trash	[træʃ]	*n.*	垃圾，废物

Chapter 9

Inspection Procedure and Measurement Tools



As we have known, every defect must be identified and measured to be compared with the inspection criteria. What should an inspector do to ensure that all the components are checked every time he/she inspects a container? What tools should he/she prepare for measuring the defects?



An Established Inspection Procedure

Since containers constitute a vital link in the worldwide movement of intermodal transportation, assuring a high standard of inspection is of paramount importance to the industry. An inspection should be performed in accordance with a routine and complete inspection procedure. There is no one "correct order" to inspect a container, except that every component should be checked for damage, wear and non-conforming repairs. Making inspections in the same order each time will help to ensure that all components are checked as a matter of course.

Checking a container for damage includes inspecting for cleanliness. If, in the opinion of an inspector, any contamination, residue, debris, odor or infestation may be harmful to human health or future cargo, then the redelivering agent must be located immediately to seek advice. The problem may relate to hazardous cargo that was previously carried, e.g., as indicated by labels remaining on the container. If any of these conditions could threaten human life, health or the environment, the container may be rejected at the incoming gate. If such a container is accepted, it must be segregated until the condition has been established, appropriate treatment advice provided and treatment procedures performed if required.

All applicable safety regulation relating to working and occupational conditions must be observed during inspections.

Basic Measurement Tools

According to inspection procedures, the inspector must rely on measurement rather than subjective judgment in determining repairworthiness of damage. Any damage discovered during an inspection must be measured and compared to the inspection criteria to determine if repair is necessary. Many of these measurements consist of specific dimensions, such as a specified depth, width or length for a dent of other deformation. Such measurement requires a certain minimum number of tools. Each inspector should have appropriate tools to help in locating, measuring and defining defects. An inspector should be properly prepared in advance to conduct inspections. The following basic measurement tools or equipment is required for general container inspection, and the inspector should keep these tools on hand at all times when inspecting a container.

1. Retractable reference line of at least 2.9 meters (9.5 feet), with magnet attached to end (Fig.9.1).

2. Damage scale. This generally consists of a ruler of at least 150 mm (6 in), preferably with gauges for 5 mm (3/16 in) and 15 mm (9/16 in) gouges attached (Fig.9.2).



Fig.9.1 Reference Line



Fig.9.2 Damage scale

3. Several magnetic spacers of various heights or thicknesses (some spacers have protruding, notched pins of varying heights to which reference lines can be attached).

4. Taper gauge (a triangular flat bar which shows the increasing width measurements away from the pointed end)(Fig.9.3)

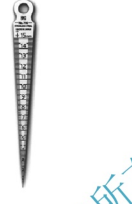


Fig. 9.3 Taper gauge

5. Standard tape measure, approximately 3.5 m (12.5 ft).

6. Corrosion testing hammer (having a tapered end with a rounded point) (Fig.9.4).

7. Aluminum weather-resistant clipboard (Fig.9.5).



Fig.9.4 Corrosion testing hammer

Fig.9.5 Aluminum weather-resistant clipboard with some other basic measurement tools

Recommended Additional Tools for Container Inspection

In addition to the basic tools required for damage measurement and general container inspection, an inspector should have access to a number of other tools that are needed for less common measurement situations. These additional tools, although not required to be in the inspector's possession at all times as are those listed above, should be readily available in the depot where the inspections are performed. They are (Fig.9.6):

1. A 15.3 meter (50 feet) retractable chalk line or string line.

2. A 15.3 meter (50 feet) measuring tape.

3. A small autofocus camera.

4. Chalk and/or magnetic clip and note paper.



5. A multi-purpose folding tool, such as a “Leatherman” tool or Swiss Army knife.
6. IICL inspection manuals.



Fig.9.6 Recommended additional tools for container inspection



Words and Expressions

constitute	['kɒnstɪtjuːt]	*vt.*	组成，构成
vital	['vaɪt(ə)l]	*adj.*	关键性的，极重要的
intermodal	[ɪntə'məʊd(ə)l]	*adj.*	(多运输方式间)联运的
paramount	['pærəmaʊnt]	*adj.*	主要的，最重要的
as a matter of course			理所当然的(事)；自然地
residue	['rezɪdjuː]	*n.*	剩余物，残留
debris	['deɪbriː]	*n.*	破片，残渣
infestation	[ˌɪnfe'steɪʃən]	*n.*	寄生虫侵扰
redelivering agent			空箱回收代理人
subjective	[səb'dʒektɪv]	*adj.*	主观的，主观上的
on hand			在手边，在附近
retractable	[rɪ'træktəbl]	*adj.*	可缩回的，伸缩自如的
reference	['ref(ə)r(ə)ns]	*n.*	参考，参照
reference line			基准线
magnet	['mægnət]	*n.*	磁铁；磁石
damage scale			测损规
gauge	[geɪdʒ]	*n.*	量规，量计，测量仪器
gouge	[gaʊdʒ]	*n.*	圆槽(或孔)
gauge for gouge			测洞规
spacer	['speɪsə(r)]	*n.*	隔离片，间隔件，垫片
notch	[nɒtʃ]	*vt.*	在……上开槽口
pin	[pɪn]	*n.*	钉，销
notched pin			凹口销

taper	['teɪpə]	*n.*	锥形，锥体，圆锥
taper gauge			锥形量规
triangular	[traɪ'æŋgjʊlə]	*adj.*	三角(形)的
triangular flat bar			三角扁钢条
tape	[teɪp]	*n.*	带子
tape measure			卷尺，带尺
hammer	['hæmə]	*n./v.*	锤，槌
corrosion testing hammer			测蚀锤
clipboard	['klɪpbɔːd]	*n.*	剪贴板，带弹簧夹的写字板
access	['ækses]	*n.*	接近(或进入，享用)的机会
have access to			可使用，有接触或进入的机会或权利
possession	[pə'zeʃ(ə)n]	*n.*	有，拥有
chalk	[tʃɔːk]	*n.*	粉笔
string	[strɪŋ]	*n.*	细绳，带
autofocus	[ˌɔːtəʊ'fəʊkəs]	*n.*	自动聚焦
clip	[klɪp]	*n.*	夹子；别针；曲别针
multi-purpose	[ˌmʌlti'pəːpəs]	*adj.*	多功能的；多用途的
Leatherman	['leðəmən]	*n.*	莱泽曼(多功能折叠刀品牌)



Notes

1. If such a container is accepted, it must be segregated until the condition has been established, appropriate treatment advice provided and treatment procedures performed if required. 如果接收了这样的集装箱，必须将其隔离，直至情况明确，得到了适当的处理建议，并在必要时执行了处理程序为止。

until在肯定句中引导时间状语从句，表示主句动词延续性的动作be segregated“直到……为止”。在until引导的时间状语从句中，过去分词provided前面加上它的逻辑主语appropriate treatment advice，过去分词performed前面加上它的逻辑主语treatment procedures，构成两个独立主格结构，作从句中的伴随状况状语。状语从句的用法详见第15章语法部分。独立主格结构的用法详见本章语法部分。

2. In addition to the basic tools required for damage measurement and general container inspection, an inspector should have access to a number of other tools that are needed for less common measurement situations. 除了损坏检验和常规检验所需的基本工具外，验箱员应该有一些其他工具，满足不太常规的测量需求。

在定语从句 that are needed for less common measurement situations 中关系代词 that 作定语从句的主语，从句谓语动词的形式取决于先行词，本句中先行词是 a number of 修饰的复数名词 tools，因此定语从句谓语动词是复数 are。定语从句的用法详见第14章语法部分。有关主谓一致的用法详见第3章语法部分。





Exercises

I. 用中文或英文回答问题

1．为什么每次检验的次序要相同？

2．如果认为某种污染对人体生命健康、环境或将来所装货物可能有危险，应该怎么办？

3．应该随时携带的基本测量工具有哪几种？

4．集装箱检验时的必备书籍是什么？

II. 英译汉

1．gauge for gouge

2．corrosion testing hammer

3．aluminum weather-resistant clipboard



4．magnetic clip

5．multi-purpose folding tool

6．Swiss Army knife

III . 汉译英

1．基准线

2．测损规

3．垫片

4．锥形量规

5．卷尺

6．自动聚焦照相机

Grammar Concerned

独立主格结构

独立主格结构

分词(短语)作状语时，其逻辑主语就是句子的主语。

(1) Having finished his work, he went out to play volleyball. 他做完工作后，出去打排球。

(2) Given more attention, the trees could have grown better. 如果对这些树多关心一些，它们本来会长得更好。

如果分词短语有它自己的独立的主语，必须在分词短语前面加上它的逻辑主语，这种主语常常是名词或代词，这种结构叫做独立主格结构。这种结构通常在句子中起时间、原因、方式、条件等状语或状语从句的作用，主要用于书面语。

1．名词或代词＋现在分词。

(1) Almost all metals are good conductors，silver being the best of all. 几乎所有的金属都是良导体，银是其中最好的。

(2) The last bus having gone, we had to walk home. 末班公共汽车已开走了，我们只好走路回家。

2．名词或代词＋过去分词。

(1) If such a container is accepted, it must be segregated until the condition has been established, appropriate treatment advice provided and treatment procedures performed if required. 如果接收了这样的集装箱，则必须将其隔离，直至情况明确，得到了适当的处理建议，并在必要时执行了处理程序为止。

(2) The dark clouds having dispersed，the sun shone again. 乌云已散去，阳光又普照大地了。

(3) The signal given, the bus started. 信号发出后，公共汽车就启动了。

上述结构中的分词亦可是不定式、形容词或介词短语。

(1) The mid-term examination is over, the end-of-term examination to come two months later. 期中考试结束了，两个月之后进行期末考试。

(2) The meeting over，we all left the room. 会议结束以后，我们就都离开了房间。

(3) The boy followed that man here, sword in hand. 少年跟那个人到这里，手里拿着剑。

with+名词/代词宾格+分词(不定式、形容词、介词短语)结构

英语里还有一种较口语化的“with+名词/代词宾格+分词(不定式、形容词、介词短语)”结构，也往往作状语用，表示伴随情况。

(1) With the boy showing the way, we found his house with no difficulty. 由这孩子领路，我们毫不费劲地找到他的家。

(2) She gazed with her hands clasped to her breast. 她双手扣在胸前凝视着。

(3) With him to give us a lead, our team is bound to turn out well. 有他给我们带头，我们队一定能搞好。

(4) Tian’anmen Square looks magnificent with all the lights on. 华灯齐放，天安门广场显得宏伟壮丽。



(5) The teacher walked into the classroom, with a ruler under his arm and some books in his hand. 老师胳膊底下夹着一把尺子，手里拿着几本书，走进了教室。

Extended Reading

Shipping Container Architecture

About 25 million of shipping containers move through U.S. container ports a year, hauling children's toys, flat-screen TVs, computers, car parts, sneakers and sweaters. Strong, durable and portable, these 20 or 40 feet multicolored boxes stack easily and link together like Legos. But so much toil takes its toll, and eventually the containers wear out and are retired. A glut of unused cargo containers lies idle around U.S. ports and ship yards. The estimates have been put closer to 12,000, including what's sold on line. Hence there is now a high demand for containers to be converted to serve specific purposes.

That's when architects and designers, especially those with a "green" bent, step in to make other uses of empty containers. Shipping container architecture is the use of containers as the basis for housing and other functional buildings for people, either as temporary or permanent housing, and either as a main building or as a cabin or workshop. Architects and designers turn these cast-off boxes into student housing, artists' studios, emergency shelters, health clinics, office buildings. Containers are also converted to provide equipment enclosures, exhibition stands, security huts and much more. And they can also be used as sheds or storage areas in industry and commerce.

Backers of such projects say that it's a good way to recycle empty containers, which tend to stack up in port cities around the world because shippers find it too expensive to send them back empty to ports of origin. Empty shipping containers have been used extensively in Europe to create not only housing but projects like office space for entrepreneurs and other types of projects. And their use is no longer rare in the U.S.

As a result, a number of container-specific accessories have become available for a variety of applications, examples include: lining/heating/lighting to create purpose-built secure offices, canteens and drying rooms, racking for archiving, condensation control for furniture storage and ramps for storage of heavier objects.

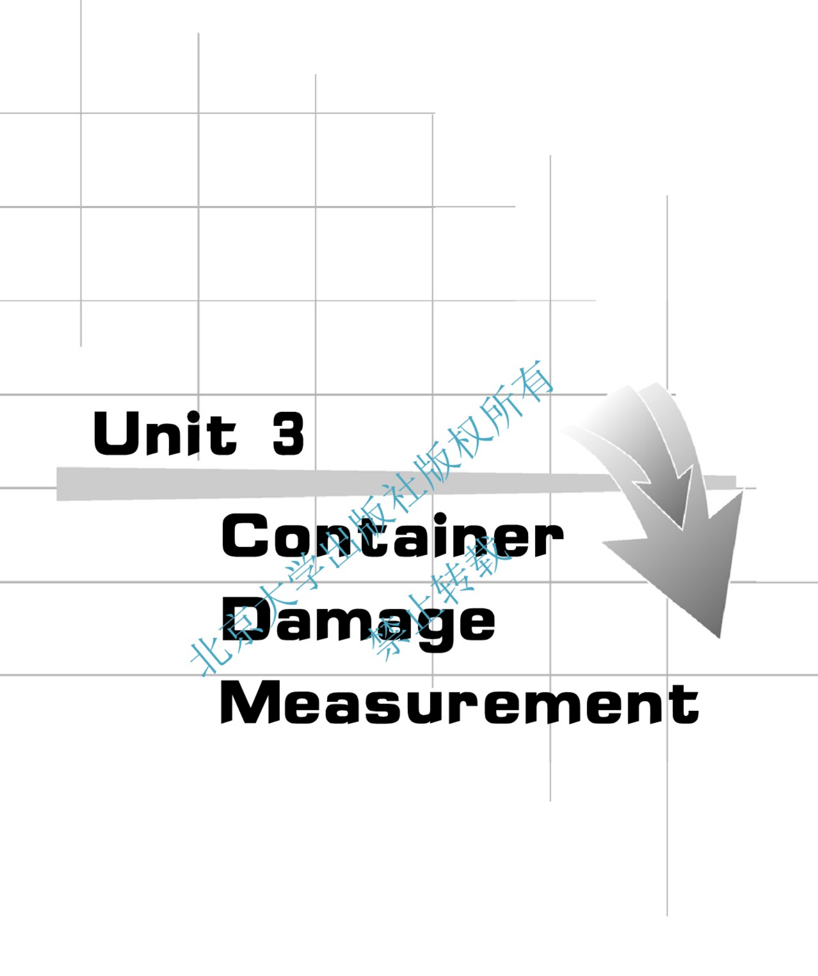
(资料来源：http://news.yahoo.com/)



Words and Expressions

architecture	['ɑːkɪtektʃə]	*n.*	建筑工程，建筑业
port	[pɔːt]	*n.*	港，港口
haul	[hɔːl]	*v.*	拖运，运送
sneaker	['sniːkə]	*n.*	卡车轮胎，运动鞋
portable	['pɔːtəb(ə)l]	*adj.*	可移动的
multicolored	['mʌltɪˌkʌləd]	*adj.*	多色的；多彩的

Lego	['legəʊ]	*n.*	乐高彩色积木
toil	[tɒɪl]	*n.*	苦工，苦活
toll	[təʊl]	*n.*	代价，损失
take its toll			造成损失
wear out			损耗，用坏
retire	[rɪ'taɪə]	*v.*	报废，退休
glut	[glʌt]	*n.*	大量，过度
idle	['aɪd(ə)l]	*v.*	(使)空闲，无所事事
yard	[jɑːd]	*n.*	(作为特殊用途的)场地，堆置场
estimate	['estɪmeɪt]	*n./v.*	估计
bent	[bent]	*n.*	倾向
permanent	['pɜːm(ə)nənt]	*adj.*	永久性的
cabin	['kæbɪn]	*n.*	舱房
workshop	['wɜːkʃɒp]	*n.*	车间，作坊
cast off			抛弃
studio	['stjuːdɪəʊ]	*n.*	工作室
emergency	[ɪ'məːdʒ(ə)nsɪ]	*n.*	突然事件，紧急情况
shelter	['ʃeltə]	*n.*	庇护，(临时)收容所
clinic	['klɪnɪk]	*n.*	医务室
enclosure	[ɪn'kləʊʒə]	*n.*	围绕物
stand	[stænd]	*n.*	置物台，架
hut	[hʌt]	*n.*	棚屋
shed	[ʃed]	*n.*	工作棚，车棚
commerce	['kɒmɜːs]	*n.*	商业
backer	['bækə(r)]	*n.*	支持者
recycle	[riː'saɪk(ə)l]	*v.*	(使)重复利用
shipper	['ʃɪpə]	*n.*	托运人；发货人
extensively	[ɪk'stensɪvlɪ]	*adv.*	广泛地；扩大地
entrepreneur	[ˌɒntrəprə'nɜː]	*n.*	企业家，创业者
canteen	[kæn'tiːn]	*n.*	食堂，小卖部
racking	['rækɪŋ]	*n.*	钢架
archive	['ɑːrkaɪv]	*n.*	档案室
condensation	[ˌkɒnden'seɪʃ(ə)n]	*n.*	冷凝，冷凝物
furniture	['fɜːnɪtʃə]	*n.*	家具
ramp	[ræmp]	*n.*	斜坡，坡道



Unit 3

Container Damage Measurement

Chapter 10

Usual Method of Measuring Bends, Dents and/or Bows



The dimensional inspection criteria fall into two categories: those for bends, dents and/or bows; and those that affect the container "envelope". This chapter discusses how to measure defects to check with the first type of criteria.

Fundamental of Damage Measurement

As any damage discovered during an inspection must be measured and compared to the inspection criteria to determine if repair is necessary, accuracy and consistency in measurement is key to maintaining containers in safe and serviceable condition. Experience in the field, however, has shown that container damage measurement can vary depending on the measurement method. Furthermore, certain conditions can make it difficult to measure some types of damage and therefore to ascertain if repair is required. It was felt, therefore, that to describe exactly how to measure damage and thereby setting a common basis for measurement methods could be helpful in achieving estimate accuracy.

The dimensional inspection criteria fall into two categories: those for bends, dents and/or bows; and those that affect ISO plus IICL tolerances on ISO dimensions, or the container "envelope". The first type—bends bows and/or dents—constitutes by far the most common category of IICL/ICS damage criteria. The limits of acceptable damage are given as a maximum depth beyond which repair is required. "Depth" of damage is defined as the deflection in any direction away from the original, undamaged profile. And the damage depth is measured from the point of maximum deflection within the damaged area to the original, undamaged point on the component.

Measuring Bends, Dents and/or Bows (Concave)

The usual method of measuring a bend, dent or bow is to position a reference line between undamaged portions of a damaged component on either side of the damage. The reference line establishes the original, undamaged profile of the damaged area. Normally, a measurement is made from the reference line to the point of maximum deflection within the damaged area: this is the depth of damage that is to be compared to the specific IICL/ICS criterion (Fig.10.1, Fig.10.2).

Often, a sharp bend or a dent is accompanied by gradual damage (such as bowing), and the damage measurement must include the total combined deflection due to both the sharp and the gradual damage. To ensure that both the sharp damage and any underlying gradual damage are captured in the measurement, standard practice is to run the reference line over the full length or height of the damaged component (Fig.10.3). In the case of a damaged side panel, for instance, the reference line would be run from just below the weld joining the top rail to the panel to just above the weld joining the bottom rail to the panel (Fig.10.4).



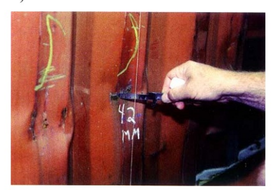


Fig.10.1 Measuring side panel dents





Fig.10.2 Measurement not to the maximum point of crossmember web deflection

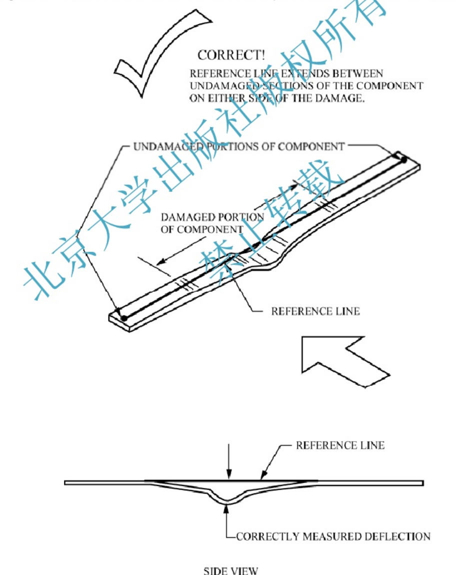


Fig.10.3 Correct placement of reference line: full damage measured





Fig.10.4　Measuring dents to panels impacted from inside and outside

There are certain exceptions to this standard practice. In some cases, there is additional damage to the component so that the reference line cannot be positioned at the end(s), or the component is so long that it is not practical to position a reference line over its entire length.

In these cases, and provided the damage is purely local, the reference line need not extend over the entire length of the component. However, the reference line must not be placed over only the immediate area of the bend or dent without including the larger area with the accompanying gradual damage. Restricting the reference line to the area of damage will fail to establish the original profile of the damaged component and will therefore result in an incorrect plane of reference for measuring the damage (Fig.10.5). As stated above, the reference line must extend between two undamaged portions of the component on either side of the damage so as to provide a correct plane of reference for the damage measurement.

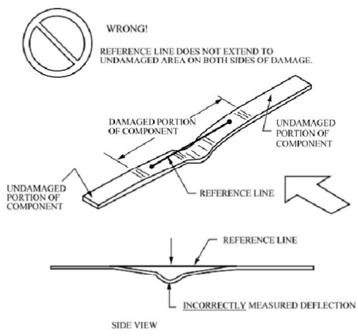


Fig.10.5　INCORRECT placement of reference line: full damage NOT measured



If, on the other hand, there is bowing over the entire length of the component, as in the case of a full-length top side rail bow, the reference line must extend the full length of the component. If the corner fittings are not thrown out of proper alignment by the damage, their surfaces usually make good anchors for the ends of the reference line (Fig.10.6).



Fig.10.6 Measuring bow to the rail

In either case, the reference line must be positioned directly over the point of maximum damage to insure that the full depth of the damage is measured (Fig.10.7, Fig.10.8).

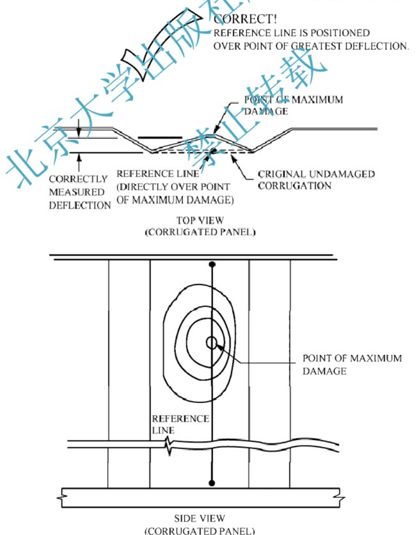


Fig.10.7 Correct placement of reference line: placed over point of maximum damage

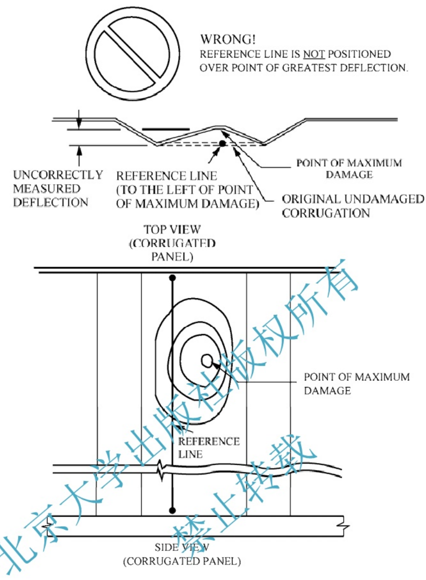


Fig.10.8　INCORRECT placement of reference line: NOT placed over point of maximum damage



Words and Expressions

consistency	[kən'sɪst(ə)nsɪ]	*n.*	一致性，稳定性
field	['fiːld]	*n.*	实地，现场
ascertain	[ˌæsə'teɪn]	*vt.*	弄清，确定
category	['kætɪg(ə)rɪ]	*n.*	种类，类别
by far			到目前为止
deflection	[dɪ'flekʃ(ə)n]	*n.*	偏差
concave	['kɒnkeɪv]	*adj.*	凹的，凹形的，凹面的
accompany	[ə'kʌmpənɪ]	*vt.*	伴随；和……一起发生(或存在)
combine	[kəm'baɪn]	*v.*	(使)结合，(使)合并
underlying	[ˌʌndə'laɪɪŋ]	*adj.*	潜在的
capture	['kæptʃə]	*vt.*	捕，捕获
run over			(使)在……上跨过



for instance 例如，比如

exception [ɪk'sepʃ(ə)n] *n.* 例外，尤指规则(或一般原则的)例外

alignment [ə'laɪnm(ə)nt] *n.* 排成直线，直线排列

anchor ['æŋkə] *n.* 锚，锚地，固定点



Notes

1. As any damage discovered during an inspection must be measured and compared to the inspection criteria to determine if repair is necessary, accuracy and consistency in measurement is key to maintaining containers in safe and serviceable condition. 因为检验中发现的任何损坏都必须进行测量，并与检验标准作比较来确定是否需要修理，所以测量准确一致是保持集装箱安全可用的关键。

as 原因状语从句中，if 引导宾语从句表示“是否”。主句中由 and 连接的两个不可数名词 accuracy 和 consistency 作主语，and 连接的并列的主语在意义上是指一个单一概念：测量的“准确而一致”，因此谓语动词用单数 is；如果指两件事，谓语动词用复数形式。宾语从句的用法详见第 11 章语法部分。有关主谓一致的用法详见第 3 章语法部分。

2. Experience in the field, however, has shown that container damage measurement can vary depending on the measurement method. 然而，实践经验表明，用不同的测量方法得到的集装箱损坏的测量值会有所不同。

主语 experience in the field 表示“现场(测量)经验”，谓语动词 show“表明”接 that 引导的宾语从句。宾语从句的用法详见第 11 章语法部分。

3. Furthermore, certain conditions can make it difficult to measure some types of damage and therefore to ascertain if repair is required. 并且某些情况可能造成难以测量某些类型的损坏，进而难以确定是否需要修理。

两个不定式短语 to measure some types of damage 和 to ascertain if repair is required 作动词 make 的宾语，而且后面还有宾语补足语 difficult，用 it 作形式宾语，而把真正的宾语——两个不定式短语放在补足语后面。不定式的用法详见第 5 章语法部分。

4. It was felt, therefore, that to describe exactly how to measure damage and thereby setting a common basis for measurement methods could be helpful in achieving estimate accuracy. 因此，我们感到精确描述如何测定损坏、并为测量方法设立共同基础，有助于做出准确的判断。

that 引导的从句作主语，而谓语部分 was felt 较短，这时用 it 作形式主语，把主语从句放在后面。主语从句的用法详见本章语法部分。

5. To ensure that both the sharp damage and any underlying gradual damage are captured in the measurement, standard practice is to run the reference line over the full length or height of the damaged component. 为了确保测量包括了陡变及任何可能的渐变，标准做法是把基准线跨过损坏部件的整个长度或高度。

由 both…and…连接两个单数名词 sharp damage 和 gradual damage 作主语，谓语动词用复数形式 are。主句中不定式短语 to run the reference line over the full length or height of the damaged component 作表语。有关主谓一致的用法详见第 3 章语法部分。不定式的用法详见第 5 章语法部分。

6. In some cases, there is additional damage to the component so that the reference line cannot be positioned at the end(s), or the component is so long that it is not practical to position a reference line over its entire length. 有时候，部件别处也有损坏，结果不能在两端设置基准线，或者部件太长，基准线无法跨越其整个长度。

or 连接两个并列句，前一句中 so that 引导结果状语从句 the reference line cannot be positioned at the end(s)，后一句中 so…that 结构引导结果状语从句 it is not practical to position a reference line over its entire length。状语从句的用法详见第 15 章语法部分。



Exercises

I. 用中文或英文回答问题

1．IICL 尺寸检验标准分为哪两类？

2．弯曲、凹损和弓变的通常测量方法是什么？

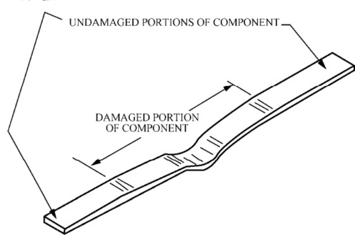
3．设定基准线位置时要注意哪两个方面？

4．基准线为什么不能仅仅跨越弯曲或凹损的紧邻区域？

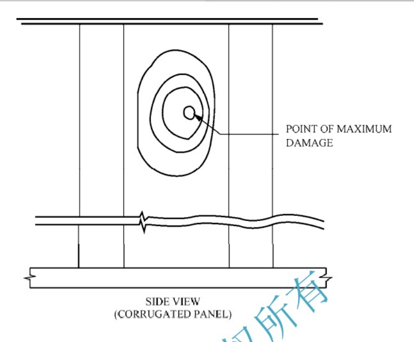
5．基准线跨越侧梁的全长时通常可以以什么部件为固定点？

6．为什么基准线必须设在损坏最严重处的正上方？

II. 画出基准线的正确位置







Grammar Concerned

主语从句

所谓从句，就是一个主谓结构作整个句子(复合句)的一个成分，因此从句不能单独使用。主语从句在句中充当主语。

一、that 引导主语从句，that 没有意义，但不能省略。

(1) That she is a rich woman is known to us all. 众所周知，她是个富有的女人。

(2) That he survived the accident is a miracle. 他在那场事故中幸存是个奇迹。

二、whether 引导主语从句，whether 后面可以加 or not。

(1) Whether I knew John doesn't matter. 我是否认识约翰没有关系。

(2) Whether or not she'll come isn't clear. = Whether she'll come or not isn't clear. 她是否来还不清楚。

三、疑问代词或疑问副词引导主语从句，相当于 the thing(s) that…, those which… 。

(1) But what hurt our feelings most was the personal comment of the judge. 最伤我们感情的是法官的私下评论。

(2) Whoever wants to see the film may get a free ticket. 凡是想看这部电影的人可免费得到一张票。

从句作主语时，尤其是在谓语部分(包括宾语)较短的情况下，多由 it 作形式主语，把主语从句放在后面。

(1) It was felt that to describe exactly how to measure damage and thereby setting a common basis for measurement methods could be helpful in achieving estimate accuracy. 我们感到精确描述如何测定损坏并为测量方法设立共同基础，有助于作出准确的判断。

(2) It worried her a lot that her hair was turning gray. 她的头发正在变白，这使她很不安。

(3) It doesn't matter to me whether she is content or not. 她是否满意对我而言并不重要。

(4) It wasn't very clear what she meant. 她的意思不清楚。

it 作形式主语的固定句型极富交际功能，举例如下。

It is a fact that… 事实是……

It is common knowledge that… ……是常识

It is a pity that… 遗憾的是……

It is a shame that… ……真是可耻

It is a wonder / miracle that… ……真是个奇迹

It is clear / obvious that… 很清楚……

It is natural that… ……很自然

It is said that… 据说……

It is reported that… 据报导……

It is believed that… 人们认为……

It seems that… 好像是……

It happened that… 碰巧……

It matters that… 要紧的是……

Extended Reading

Shipping Containers to Be Recycled into Condos

A Detroit company, Three Squared, plans to turn empty shipping containers into a 20-unit condo complex near downtown.

The 20-unit four-story condo complex consisting of 93 stacked cargo containers, the first U.S. multi-family residence to be built from these discarded vessels, has been in the works for several years. First proposed in 2008, the shipping-container condo project known as Exceptional Green Living on Rosa Parks stalled in the national real estate crash when the national real estate market shattered, but the project is now back on target for a construction start, and is scheduled to break ground in midtown Detroit.

The condo units will range in size from 850 to 1,920 square feet. And the $3.4 million project will stack empty containers four high, cut in windows and doors, install plumbing and stairways, and add amenities such as balconies and landscaped patios (Fig.10.9). The units will come rigged with ductless heating and air systems, tankless water heaters and other energy-saving systems. "We're putting money into these energy efficiencies so that the tenant has reduced energy costs," said Leslie Horn, CEO of Three Squared, "and we can build in less than half the time."

Horn admitted that many people find the concept strange. "Even last week I met with some investors and one of them said, I'd rather invest after you have one built." I think people still have a prejudice because they don't see the versatility in container construction.

But Horn believes that house hunters will soon be able to check out what may be the most unusual condominium project in town, and the 20-unit complex near Wayne State University built from empty shipping containers will let potential buyers see just how innovative shipping container



architecture can be.

If successful, the prototype project in Detroit could lead to widespread other uses of empty containers, Horn said, including student or emergency housing, temporary construction offices, and infill houses in urban neighborhoods. Horn is already looking ahead to similar projects in other cities. She added, “We believe it’s just the beginning of the capacity of our company.”

(资料来源：http://www.usatoday.com/)

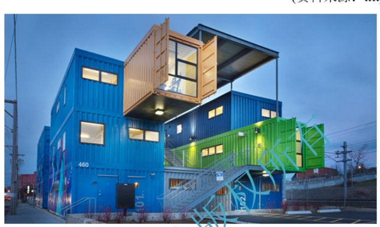


Fig.10.9 Box-container condos

Words and Expressions

condo ['kɒndəʊ] *n.* 分套公寓房

Detroit [dɪ'trɔɪt] *n.* 底特律

complex ['kɒmpleks] *n.* 复合体；综合设施
adj. 复杂的

downtown ['daʊntaʊn] *n.* 市中心

story ['stɔːrɪ] *n.* (楼的)层

residence ['rezɪd(ə)ns] *n.* 住宅

discard [dɪ'skaːd] *v.* 抛弃，扔掉

in the works 在计划中，在进行中

exceptional [ɪk'sepʃ(ə)n(ə)l] *adj.* 卓越的，特殊的

stall [stɔːl] *v.* (使)停顿；(使)拖延

estate [ɪ'steɪt] *n.* 财产

real estate 不动产；房地产

crash [kræʃ] *v.* 猛撞，破产

shatter ['ʃætə] *v.* (被)毁坏

break ground 破土动工

plumbing ['plʌmɪŋ] *n.* 抽水马桶

stairway ['steəweɪ] *n.* 楼梯

amenity [ə'miːnɪtɪ] *n.* [常作复数]便利设施

balcony ['bælkənɪ] *n.* 阳台



landscape	['læn(d)skeɪp]	*n.*	风景，景观
patio	['pætɪəʊ]	*n.*	露台，平台
rig	[rɪg]	*vt.*	装配
ductless	['dʌktlɪs]	*adj.*	无管道的
tankless	['tæŋklɪs]	*adj.*	无水箱的
efficiency	[ɪ'fɪʃ(ə)nsɪ]	*n.*	效率
tenant	['tenənt]	*n.*	房客；居住者
concept	['kɒnsept]	*n.*	观念
prejudice	['predʒʊdɪs]	*n.*	偏见，成见
versatility	[ˌvɜːsə'tɪlətɪ]	*n.*	多功能性
condominium	[ˌkɒndə'mɪnɪəm]	*n.*	分套公寓
Wayne State University			韦恩州立大学
innovative	['ɪnəvetɪv]	*adj.*	创新的
prototype	['prəʊtətaɪp]	*n.*	样板
widespread	['waɪdspred]	*adj.*	普遍的，广泛的
infill	['ɪnfɪl]	*n.*	填充
urban	['əːb(ə)n]	*adj.*	城市的
look ahead			展望未来

Chapter 11

"Space out/Measure back" Method of Measuring Bends, Dents and/or Bows

Lead-in

In some cases, the reference line cannot run over the damage to establish the original, undamaged profile of the damaged area. This chapter probes into the measurement method in such cases.

Two exceptions exist for the measurement method described last time: first, when damage is convex with respect to the reference line (that is, when damage extends out into the path of the reference line); and second, when the damage occurs on a non-linear surface. In addition, there are cases where the reference line cannot be placed directly over the damage because adjacent components would extend into the reference line.

Measuring Convex Damage

When convex damage cannot be measured from the opposite side (with the reference line positioned on the concave side) as described before, the "space out/measure back" method should be used. The reference line is "spaced out" (i.e., placed away) from the component by a known distance in order to clear all obstacles. "Spacers" of a known thickness (height) are used to position the reference line away from the damaged component. A spacer is placed on either side of a component, and the reference line is extended from the top surface of one spacer across to the top surface of the second spacer. A measurement is then made from the reference line to the point of maximum deflection within the damage. This measurement is then subtracted from the distance that the reference line has been spaced out from the component to determine the actual depth of the damage. This method is referred to as the "space out/measure back" method.

For example, a crossmember has been bent in two directions. The string line cannot be placed directly on either side of the web because the adjacent damage interferes with running the line over the entire length of the crossmember. Consequently, the reference line is spaced back from the crossmember web (in actual practice, the reference line is held against the bottom side rail webs a known distance away from the crossmember web), and the damage is determined by measurement and calculation (Fig.11.1).

In the drawings illustrating situations where damage measurements are made by calculation, the capital letter "S" will denote a spacer thickness, "M" a measured dimension; and "D" a calculated dimension of damage.

Measuring Damage on Non-Linear Surfaces (Roof Sheets)

The second case where damage cannot be measured using the common method involves the measurement of damage on non-linear surfaces (i.e. roof sheets) because the reference line is straight, it cannot follow the original curved surface of the roof sheet; therefore, it's understandable that the original undamaged position of the damaged surface cannot be precisely determined. To provide a common framework for assessing this type of damage and to assure consistent field measurement results, IICL Guide recommends that the curvature of the roof sheet in such cases be ignored; the reference line should simply be placed across the entire length of the damaged component, and the measurement taken from reference line to the point of maximum damage just as in usual cases. The reference line should be placed on the concave side of the damage. If this is not



possible, the reference line may be placed on the convex side of the damage, and the "space out /measure back" method of measurement used.

Fig.11.1 Measuring crossmember web damage when reference line cannot be placed along web

For example, if there is an upward bend on the interior surface of a roof sheet in the flat area between corrugations, as the camber (curvature) of the roof cannot be followed by the reference line, the damaged measurement is made from a reference line placed horizontally across the roof sheet width, and roof camber is ignored (Fig.11.2).



UPWARD ROOF DAMAGE ON FLAT AREA BETWEEN CORRUGATIONS

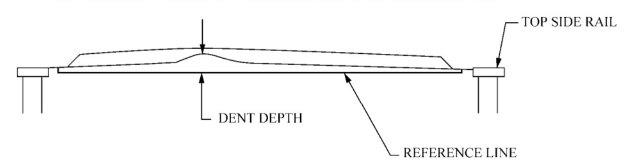


Fig 11.2 Measuring upward damage on roof: flat area between corrugations



Words and Expressions

convex	[kɒn'veks]	*adj.*	凸的，凸形的，凸面的
with respect to			关于，相对于
non-linear	[nɔn'lɪnɪə]	*adj.*	非直线的
space out/measure back method			间隔/扣减法
obstacle	['ɒbstək(ə)l]	*n.*	障碍，障碍物
subtract	[səb'trækt]	*v.*	减，减去
web	[web]	*n.*	腹板
calculation	[ˌkælkju'leɪʃən]	*n.*	计算
capital	['kæpɪt(ə)l]	*adj.*	大写的
denote	[dɪ'nəut]	*vt.*	表明，是……的标志
curve	[kə:v]	*v.*	(使)弯曲，(使)成曲线，成弧形
curvature	['kə:vətʃə]	*n.*	弯，弯曲
ignore	[ɪg'nɔ:]	*vt.*	忽视
camber	['kæmbə]	*n.*	弧形，弧拱，中凸形
horizontally	[ˌhɒrɪ'zɒnt(ə)lɪ]	*adv.*	水平地，横地



Notes

1. This measurement is then subtracted from the distance that the reference line has been spaced out from the component to determine the actual depth of the damage. 基准线抬离部件的距离减去这个测量值，得出实际损坏深度。

定语从句 that the reference line has been spaced out from the component 修饰 distance，关系代词 that 在定语从句中作宾语，可以省略。定语从句的用法详见第 14 章语法部分。

2. The string line cannot be placed directly on either side of the web because the adjacent damage interferes with running the line over the entire length of the crossmember. 腹板两侧无法直接安放线绳，因为相邻缺损使线绳无法跨过底横梁的全长。



because 引导原因状语从句，表示必然的因果关系。because 从句所陈述的理由是全句的重点，一般放在主句后面。状语从句的用法详见第 15 章语法部分。

3. For example, if there is an upward bend on the interior surface of a roof sheet in the flat area between corrugations, as the camber of the roof cannot be followed by the reference line, the damaged measurement is made from a reference line placed horizontally across the roof sheet width, and roof camber is ignored. 例如，如果顶板内表面波纹板间平面区域有一处向上弯曲，由于基准线不能沿箱顶拱形(曲面)行走，水平设一条基准线横跨顶板宽度进行测量，忽略箱顶拱形。

as 意为"既然"，表示 the camber of the roof cannot be followed by the reference line 是比较明显的原因。as 从句可以放在句首也可以放在句尾，经常放在句首。状语从句的用法详见第 15 章语法部分。



Exercises

I. 用中文或英文回答问题

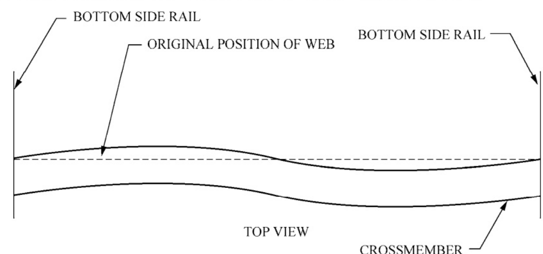
1．测量弯曲、凹损和弓变的通常方法在哪两种情况下不能使用？

2．怎样测量凸变？

3．"间隔/扣减"法怎样操作？

4．怎样测量非直线表面的损坏？

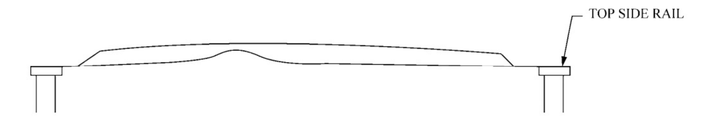
II. 画出基准线的设置位置、测量的位置，并写出损坏深度的计算公式。



D_1=

D_2=

UPWARD ROOF DAMAGE ON FLAT AREA BETWEEN CORRUGATIONS



Grammar Concerned

宾语从句

宾语从句作谓语动词、动词不定式、分词、动名词、介词的宾语，某些形容词如 sure, happy, glad, certain, pleased 等之后也可以带有宾语从句。

一、that 引导宾语从句，that 没有意义，在口语或非正式文体中常省略。

(1) Experience in the field has shown that container damage measurement can vary depending on the measurement method. 实践经验表明，用不同的测量方法得到的集装箱损坏的测量值会有所不同。

(2) Hearing that his son was badly wounded, he hurried to the hospital to see him. 听说儿子受了重伤，他急忙赶到医院去看望他。

that 引导宾语从句时可以省略，that 引导主语从句时不能省略。

若一个动词带两个 that 引导的宾语从句，第一个 that 可省略，第二个 that 不能省略，以免引起歧义。

(1) It is the inspector's responsibility to ensure (that) any repairworthy damage is found and designated for repair and that the appropriate extent and method of repair is indicated to correct the damage. 验箱员的职责是要保证发现并标出所有需要修理的损坏，以便进行修理，他们还要确保标出的修理范围和方法适当，以修复那些损坏之处。

(2) She didn't admit (that) she had helped the criminal and that she had kept in touch with him all along. 她不承认曾帮助过那个罪犯，并且一直与他保持联系。

在 think, believe, suppose, expect 等动词的宾语从句中，否定不用在从句中，而是将 think 等动词变为否定形式。

(1) I don't think the film is interesting. 我觉得这部电影没什么意思。

(2) I don't suppose we are going outing tomorrow. 我认为我们明天不会出去郊游。

二、whether/if 引导宾语从句。

(1) Any damage discovered during an inspection must be measured and compared to the inspection criteria to determine if repair is necessary. 检验中发现的任何损坏都必须进行测量，并与检验标准作比较来确定是否需要修理。

(2) I doubt whether / if he will come to our help. 他是否能来帮助我们，我感到怀疑。

在 if 与 whether 含义易混时只能用 whether 不能用 if。

(1) Please let me know whether you need my help. 请告诉我你是否需要我的帮助。



(2) Please let me know if you need my help. 如果你需要我的帮助请告知。

whether 后面可以加 or not，突出“究竟是……还是不……”，if 不与 or not 连用。

Let me know whether you can come or not. 你能来还是不能来，告诉我一声。

作介词宾语时，不用 if。

(1) I worry about whether I hurt her feelings. 我担心是否伤害了她的感情。

(2) It all depends on whether we can get their cooperation. 这完全取决于我们是否能得到他们的合作。

三、疑问词引导宾语从句，包括介词宾语。

(1) It is still hard to predict who will win the next presidential election. 现在还很难预测谁会赢得下一届总统选举。

(2) As a friend of yours, I want to tell you what I hear. 作为你的朋友，我想告诉你我所听到的。

(3) Possibly the most difficult part of an inspection is distinguishing between what is acceptable and what is not acceptable, once a defect has been identified. 验箱的最困难之处也许是在发现一个缺陷后确定其是否可以接受。

(4) I don't care about money or what people call position. 我不在乎金钱或者别人所谓的地位。

宾语从句可以用在人作主语、形容词表示思想状况或感情色彩的句型里，这种形容词有 afraid, amazed, anxious, aware, certain, confident, convinced, disappointed, doubtful, glad, happy, positive, sorry, sure, surprised, worried 等。

(1) I am afraid that I can't promise you anything. 恐怕我不能向你保证什么。

(2) I'm not sure whether/if the report is believable. 我不确定报告是否可信。

如果从句作宾语后面还有补语，为了保持句子的平衡，用 it 作形式宾语，而将宾语从句放在句尾，常跟这样的复合宾语的动词有 make, find, see, hear, feel, think, consider, regard, take….for granted 等。

(1) They kept it quiet that the emperor was dead. 对皇帝已经死亡的消息，他们秘而不宣。

(2) I took it for granted that you'd stay with us. 我想当然认为你会和我们呆在一起。

Extended Reading

Creating Shops from Shipping Containers

Retail spaces in refurbished shipping containers are becoming increasingly popular as designers find ways to reuse the vacant large containers that carried imports to the U.S. on cargo ships. This bricks-and-mortar alternative appeals to small businesses that aren't yet able to afford a more expensive, traditional retail space.

When Carlos started selling sunglasses in 2008, he knew he couldn't bear the high rent or multi-year commitment that a shop in New York City would entail. Instead, he sold his goods at street fairs and festivals, making the rounds at as many as 40 events a year. But hoping to have a fixed retail space, he finally found a way to make it happen last year: setting up shop inside a large, refurbished steel shipping container. For $1,400 a month including utilities, Carlos now occupies a

160-square-foot space in the Dekalb Market, a complex of 60 retailers housed in shipping containers. The rent is affordable, and the one-year lease means he doesn't have to make a long-term commitment.

But affordability is not the only benefit. Shipping container stores clustered together draw more interest from consumers than a stand-alone shop would. Just the launching of Dekalb Market in July 2011 has started a ripple of interest, for people seem to find the space interesting (Fig.11.3). Carlos launched a chicken wings eatery called Dekalb Wings in a nearby container this year. The low-risk rental seems like the perfect chance to test out a new business idea. "I figure I might as well go after it," he said. "It is a great opportunity to see if we have something the market wants."



Fig.11.3 Shops housed in shopping containers at the Dekalb Market

Besides, portability is one of the most appealing features of shipping container shops. Some small merchants are buying shipping containers rather than renting. The building process requires complicated permit approval, but as owners of the containers, entrepreneurs can transport their shops wherever they like.

Eileen already operated three coffee bars in traditional retail spaces, but she liked the idea of a coffee bar that she could put on a truck and move to a new location whenever she felt ready for a change. In 2011, she opened a fourth coffee bar alongside a handful of other retailers housed in shipping containers on a vacant piece of land in San Francisco. "I can just take my building somewhere else and hook it up to water and power," she says.

(资料来源：http://www.entrepreneur.com/)



Words and Expressions

retail	['riːteɪl]	*n./v.*	零售
retail space			零售空间
refurbish	[riː'fəːbɪʃ]	*vt.*	整新，刷新
vacant	['veɪk(ə)nt]	*adj.*	空的，未使用的
brick	[brɪk]	*n.*	砖
mortar	['mɔːtə]	*n.*	砂浆
alternative	[ɔːl'təːnətɪv]	*n.*	替代品，可供选择的事物
		adj.	供替代的；供选择的



appeal to			有吸引力
afford	[ə'fɔːd]	*vt.*	花得起(费用等)，担负得起
sunglasses	['sʌnglɒːsɪz]	*n.*	太阳镜
rent	[rent]	*n.*	租金，租费
		v.	出租，租用
entail	[ɪn'teɪl]	*vt.*	(使)承担，(使)必须
fair	[feə]	*n.*	定期集市
festival	['festɪv(ə)l]	*n.*	节日
make the rounds			巡回
utility	[juː'tɪlɪtɪ]	*n.*	公用事业设备
occupy	['ɔkjʊpaɪ]	*v.*	占有
cluster	['klʌstə]	*v.*	(使)群集
launch	[lɔːntʃ]	*v.*	开始
ripple	['rɪp(ə)l]	*n.*	波动
eatery	['iːtərɪ]	*n.*	[美国口语]小吃店
rental	['rent(ə)l]	*n.*	租金额，租费
figure	['fɪgə]	*v.*	计算，料想
might as well			不妨，还是……的好
go after			追求，努力赢得
complicated	['kɒmplɪkeɪtɪd]	*adj.*	复杂的
approval	[ə'pruːv(ə)l]	*n.*	正式批准，许可
location	[lə(ʊ)'keɪʃ(ə)n]	*n.*	场所，地点，位置
handful	['hændfʊl]	*n.*	一把，少数
hook	[hʊk]	*v.*	钩
hook up			以钩钩住，安装

Chapter 12

Method of Measuring Damage to Check "Envelope" Limits



Now that we have learnt how to measure particular bends, dents and/or bows to check with the first type of criteria, the method to measure the second type of criteria, that is, whether a defect affects the container "envelope", will be explained in this chapter.



In the cases discussed above, it was necessary to measure the depth of damage and compare to the permissible limit for that component to determine if repair was required. Certain IICL/ICS criteria, however, are not based on acceptable limits for a particular bend, dent or bow. Instead, they require that the damage not pass beyond certain prescribed limits defined by ISO, with added tolerances permitted by IICL and ICS ("IICL tolerances").

Using "Space Out" Method with Limiting Surface as Reference Point

Instead of measuring a dent to ascertain if the depth exceeds a limit, the damage is checked to see if it extends beyond the plane defined by the maximum ISO dimensions and ISO plus IICL tolerances. These criteria, commonly known as the "out-of-ISO" limits, are also measured with the use of a reference line. In these cases, the reference line is used to establish the limiting surface (as, for instance, corner fitting faces) and the damage is checked to see if it reaches that limit.

For example, an impact to a corner post has pushed material outward so that it could possibly exceed the IICL criteria for end frame dimensions of "ISO+5mm (3/16 in)"; that is, no end-frame damage may extend more than 5 mm (3/16 in) beyond the vertical plane defined by the vertical surfaces of the corner fittings. In this case, the reference line is spaced out 5 mm (3/16 in) from the corner fitting surfaces, and the damage is checked to see if it reaches the reference line. If it does, repair is required. This method is illustrated is at right (Fig.12.1).

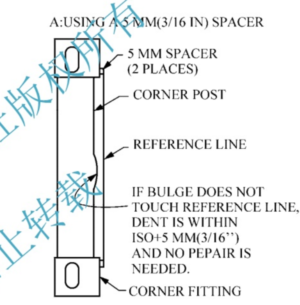


Fig 12.1 Using a spacer to determine if corner post damage exceeds ISO+ IICL tolerances

If the inspector does not have a spacer exactly 5 mm (3/16 in) thick, he may use any two spacers of equal thickness greater than 5 mm (3/16 in) , and use a variation of the "space out/ measure back" method. The following figure illustrates the method (Fig.12.2).

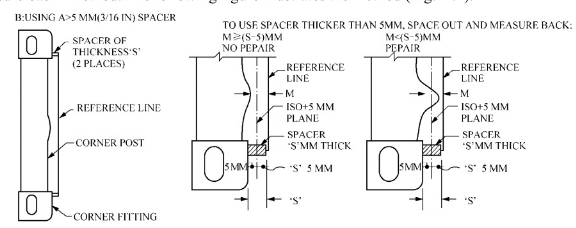


Fig.12.2 Using a spacer to determine if corner post damage exceeds ISO+ IICL tolerances

Checking Envelope When Reference Line Cannot Be Positioned at Limiting Surface and Over Damage

In some cases, it is not possible to position a reference line both at the limiting surface, such as the corner fittings, and directly over the damage. For example, this usually happens in the case of panel bulges, where the reference line cannot be positioned from the corner fittings over the damage. As a consequence, it is not possible to check directly if the damage reaches a reference line and thus is “out-of –ISO” (i.e., exceeds the envelope or the ISO-specified dimension and tolerance plus the additional tolerance permitted under IICL criteria).

To provide a standardized method for checking the envelope when the reference line cannot be placed in a position that makes direct measurement possible, IICL has developed an indirect measurement procedure. A reference line is placed in a location where it is possible to measure deflections. The maximum allowable distance between this line and the envelope limit is defined using assumptions about typical material profiles. This distance is called the “reference dimension”. The distance between the reference line and the maximum point of damage is measured and then compared to the reference dimension. If the measurement is greater than the reference dimension, the dent or other damage exceeds the permissible limit, is “out-of-ISO” and must be repaired.

Take an outward dent in an outboard side panel corrugation as an example, an inspector suspects that the dent, which bulges out from the outboard corrugation, might exceed the IICL criterion (“ISO tolerances plus 10 mm (3/8 in)”); in other words, the bulge might protrude more than 10 mm (3/8 in) beyond the plane defined by the side vertical surfaces of the corner fittings. The inspector cannot space out a reference line 10 mm (3/8 in) beyond the corner fittings and at the same time place it directly over the damage, because the damage is not directly in line between the two corner fitting surfaces (Fig.12.3).

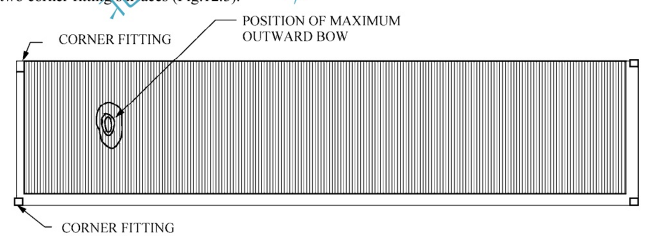


Fig.12.3 A case where reference line cannot be positioned between two corner fittings over point of maximun damage

The method recommended by IICL Guide is to place the reference line vertically on the inside surface of the outboard corrugation starting as close as possible to the weld joining top rail to panel, and extending down to the weld joining bottom rail to panel. The bend, dent or bow depth should be measured in the standard way, from reference line to the point of maximum damage. The



assumption is made that the interior surface of an undamaged outboard corrugation is located 8 mm (3/8 in) inwards of the outside vertical face of the corner fittings. The reference dimension in the case illustrated in the figure is 18 mm (11/16 in). Therefore, if the measurement exceeds 18 mm (11/16 in), the outward bulge exceeds the ISO + 10 mm (3/8 in) criterion, and must be repaired (Fig.12.4).

TOP RAIL

IN

OUT

INBOARD CORRUGATION

OUTBOARD CORRUGATION

REFERENCE LINE(PLACED) INSIDE OF OUTBOARD CORRUGATION AND EXTENDING FROM RAIL TO RAIL)

IF THIS DIMENSION EXCEEDS 18 MM(11/16 IN),OUTER PANEL IS OVER ISO+10 MM(3/8 IN), AND REPAIR IS REQUIRED

BOTTOM RAIL

Fig.12.4 Checking ISO + IICL tolerances when reference line cannot be positioned between two corner fittings over point of maximum damage



permissible	[pə'mɪsɪb(ə)l]	*adj.*	可允许的，容许的
bulge	[bʌldʒ]	*n./v.*	膨胀，凸出



assumption	[ə'sʌmpʃ(ə)n]	*n.*	假定，设想
suspect	[sə'spekt]	*v.*	怀疑



Notes

1. Instead, they require that the damage not pass beyond certain prescribed limits defined by ISO, with added tolerances permitted by IICL and ICS ("IICL tolerances"). 相反，它们要求损坏不超出 ISO 规定的某些极限外加 IICL/ICS 许可的额外公差(IICL 公差)。

表示建议、要求、命令等意思的动词 require 后面的宾语从句，用 should+动词原形，should 可以省略，而引导宾语从句的 that 不能省略。虚拟语气的用法详见第 2 章语法部分。

2. For example, an impact to a corner post has pushed material outward so that it could possibly exceed the IICL criteria for end frame dimensions of "ISO+5mm (3/16 in)". 例如，撞击使角柱材料外凸，有可能超出 ISO+5mm (3/16 英寸)的 IICL 端框尺寸标准。

so that 引导结果状语从句。状语从句的用法详见第 15 章语法部分。

3. For example, this usually happens in the case of panel bulges, where the reference line cannot be positioned from the corner fittings over the damage. 例如，板材凸出时，无法通过角件在损坏上方设置基准线，就常常发生这种情况。

关系副词 where 引导非限定性定语从句修饰 case。定语从句修饰 case、situation、condition、stage、point 等表示抽象意义的词，关系词在定语从句中作状语时，常用关系副词 where 引导，相当于 in which 结构。定语从句的用法详见第 14 章语法部分。

4. A reference line is placed in a location where it is possible to measure deflections. 基准线设在可以测量变形的位置。

关系副词 where 引导限定性定语从句修饰 location，关系副词 where 在定语从句中作地点状语。定语从句的用法详见第 14 章语法部分。

5. Take an outward dent in an outboard side panel corrugation as an example, an inspector suspects that the dent, which bulges out from the outboard corrugation, might exceed the IICL criterion. 以侧板波纹板外凸面上的一处向外凸出为例，验箱员怀疑这处从波纹板外凸面向外的凸出可能超出了 IICL 标准(ISO 公差加 10 mm 或 3/8 英寸)。

which 引导非限定性定语从句修饰 dent。定语从句的用法详见第 14 章语法部分。

6. The assumption is made that the interior surface of an undamaged outboard corrugation is located 8 mm (3/8 in) inwards of the outside vertical face of the corner fittings. 假定未损坏的波纹板外凸面内表面位于角件外垂直面内 8mm(3/8 英寸)处。

that 引导同位语从句，对主语名词 assumption 的实际内容作进一步解释，具体、详细的说明。主语的同位语从句较长，而谓语部分 is made 较短，为了句子平衡，同位语从句可以后移。同位语从句的用法详见本章语法部分。



Exercises

I. 用中文或英文回答问题

1．检查损坏是否导致集装箱尺寸超出 ISO+IICL 公差在操作上有哪两种情况？



2．当基准线可以同时设在界限表面和损坏的正上方时怎样操作？

3．当基准线可以同时设在界限表面和损坏的正上方，可是没有 IICL 公差值厚度的垫片，怎么办？

4．当基准线不能同时设在界限表面和损坏的正上方时怎样操作？

II. 思考并总结

集装箱尺寸检验标准有哪些类型？损坏测量中有哪些情况，各应怎样处理？

Grammar Concerned

同位语从句

同位语从句是对名词 fact, news, idea, truth, hope, suggestion, question, problem, doubt, fear, belief 等的实际内容作进一步解释，具体、详细的说明。

一、同位语从句常由 that 引导。

(1) Designers not only have to take account of a machine's subsequent function, but also of the fact that it must first be transported to where it will be used and installed there without suffering damage. 设计师不仅要考虑机器以后的功能，还要考虑到它首先必须不受损坏地运抵使用场所并安装到位。

(2) The news that the United States was hit by terrorist attacks took the whole world by surprise. 美国受到恐怖主义分子袭击的消息令全世界吃惊。

二、疑问词引导同位语从句。

(1) The question who can take over his job is worth considering. 谁能接替他的工作，这个问题值得考虑。

(2) We are faced with the problem whether we can hold out to the end. 我们面临着能否坚持到底的问题。

为了句子平衡，同位语从句可以后移。

(1) The assumption is made that the interior surface of an undamaged outboard corrugation is located 8 mm (3/8 in) inwards of the outside vertical face of the corner fittings. 假定未损坏的波纹板外凸面内表面位于角件外垂直面内 8mm(3/8 英寸)处。

(2) They have no idea at all where he has gone. 他们一点儿也不知道他去哪儿了。

Extended Reading

The Next Industrial Revolution Starts in this 20-foot Shipping Container

Re-Char is a small startup that makes a specialized kiln in western Kenya. To make these kilns,

they needed to precision-cut metal. The two main options they had were local labor—a guy with an oxy-acetylene torch on the side of the highway, or full production runs out of China, a shipping container at a time. But the options available were either unprofessional, or wasteful, costly and not as efficient as simply manufacturing near to the customers. To fulfill the task in a place with little industry or infrastructure, Re-Char designed something new—a fully functioning factory inside a 20-foot shipping container. A staff of two could run the factory (Fig.12.5). It ended up being the right way to do production, even if you only look at the financial end of it.



Fig.12.5 Re-Char's two-man team

Beyond being the most cost-effective, it was also the greenest—both from a manufacturing and shipping standpoint. It's actually taking the factory, a fully-integrated manufacturing center, to where the demand exists. By shrinking down shipment distance, Re-char greatly reduces the transportation cost.

And once the factory was set up, it became a center of innovation. Re-Char was able to continue honing the kiln design even as it was in production. The facility could make new products to meet the needs of the locals, and they could do it extremely quickly.

Re-Char is working well, and it works so well, in fact, that it is now ready to send the self-sufficient Factory-in-a-Box anywhere in the world. Their group's ultimate goal is to become a global network of In-a-Box Factories.

This could mark a tremendous shift in manufacturing. It's easy to imagine an independent amateur designer coming up with the next great thing, which, without a shipping container factory, he or she might not have ever had the chance to try. And it's hard to exaggerate how significantly life can change for a community once one of these shipping containers shows up. This movement, if it catches on, would be nothing short of revolutionary.

(资料来源：http://gizmodo.com/)



Words and Expressions

revolution	[revə'luːʃ(ə)n]	*n.*	革命，彻底变革
industrial revolution			工业革命
startup	[stɑ:tʌp]	*n.*	新创办的小公司
specialize	['speʃəlaɪz]	*v.*	(使)专门化
kiln	[kɪln]	*n.*	窑



Kenya	['kenjə]	*n.*	肯尼亚
precision-cut	[prɪ'sɪʒ(ə)nkʌt]	*v.*	精密切割
option	['ɔpʃ(ə)n]	*n.*	(供)选择的事物(或人)
local	['ləʊk(ə)l]	*adj.*	本地的，当地的
		n.	本地居民，当地人
oxy-acetylene	['ɒksɪəˌsetɪliːn]	*n.*	氧乙炔
torch	[tɔːtʃ]	*n.*	火炬，气炬
highway	['haɪweɪ]	*n.*	公路
production runs			流水线生产，大量生产
infrastructure	['ɪnfrəstrʌktʃə]	*n.*	基础设施
function	['fʌŋ(k)ʃ(ə)n]	*vi.*	运行
end up doing			以……而告终
financial	[faɪ'nænʃ(ə)l]	*adj.*	财务的，财政的
standpoint	['stæn(d)pɒɪnt]	*n.*	观点，立场
integrated	['ɪntɪgretɪd]	*adj.*	综合的，整体的
shipment	['ʃɪpm(ə)nt]	*n.*	运货
hone	[həʊn]	*vt.*	磨，锤炼
mark	[mɑːk]	*v.*	作记号；标志
tremendous	[trɪ'mendəs]	*adj.*	巨大的，极大的
shift	[ʃɪft]	*n.*	改变，转换
amateur	['æmətə]	*n.*	业余活动者，非专业(性)人员
come up with			想出，提出
exaggerate	[ɪg'zædʒəreɪt]	*v.*	夸大，夸张
community	[kə'mjuːnɪtɪ]	*n.*	社区
show up			出现
catch on			流行起来
short of			不足，少于，次于

Chapter 13

Criteria for Container Cleanliness

Lead-in

As we know, in dimensional inspection, all the defects must be measured and compared to the inspection criteria to determine if repair is necessary. What about cleanliness inspection then? This chapter provides an introduction to the principles and criteria for determining whether cleaning is required.



General Objective

Depots should refer to the ICS/IICL *General Guide for Container Cleaning* for instructions on specific cleaning methods recommended for each condition. The inspection criteria and cleaning methods presented in this Guide are intended to provide users with a properly cleaned container.

Take dry-van and open-top containers for example: the primary objective of the cleanliness criteria for dry-van and open-top containers is to insure that cargo appropriate to those types of containers is not damaged due to the condition of the container. In other words, dry-van containers must be clean enough to carry dry-van general cargo and open-top containers must be clean enough to carry open-top cargo.

Dry-van general cargo carried in dry-van containers includes: household goods, canned and bottled goods, paper, palletized and wrapped products, tires and other goods that are not highly sensitive to contamination, staining or taint. Open-top cargo generally includes heavy items such as machinery, lumber, construction materials, etc. Open-top cargo has a lower sensitivity to the interior condition and cleanliness of the container than does dry-van general cargo. As a consequence, the criteria for open-top containers reflect a lower standard for cleanliness than would normally be required from a dry-van container. Nevertheless, conditions such as slippery floors that may impede safe loading and operation of open-top containers must be repaired, even though they may not harm open-top cargo.

The secondary objective of the cleanliness criteria is to provide a container that meets shipper and lessee acceptability requirements. And when cleaning is required, an additional objective is to eliminate unnecessary cleaning costs by replacing more costly methods such as washing with less costly methods, such as sweeping.

General Principles for Determining When to Clean (All Container Types)

In order to determine when to clean, the following general guideline should be followed:

Cleaning is required when one or both of the following two conditions is/are present:

1) The material or odor is transferable to cargo

AND

The transferred material or odor will damage the type of cargo carried in the various types of containers or impede the safe loading and/or operation of the container

OR

2) The general appearance and cleanliness of the container would not be acceptable to the shipper or lessee

As a general guide, cleaning is required when material is present that is both transferable to cargo and that is visibly wet, oily or sticky, or that cannot be easily removed from cargo by brushing or dusting off without leaving stains. The test for transferability is a single, gentle wipe (without rubbing) with the bare finger tips.

Transferability can vary depending on ambient temperature. The inspector must decide if a material is transferable based solely on the ambient conditions at the time of the inspection without conjecture as to the transferability of the material under other conditions.

In general, a less strict standard for transferability is applied to the floor and ceiling than to the rest of the interior in dry-vans and open-tops. Furthermore, a less strict standard is applied to inorganic materials left in a container than to organic materials that may lead to mold or infestation. Certain inorganic materials may be left in the container, but all organic material must be removed.

Inspection Criteria

Table 13.1 contains details of some specific defects that should be checked for during an inspection.

Table 13.1 Cleanliness Inspection Criteria

Component	Condition	Action Required
Interior and exterior	Labels, including hazardous cargo labels	REPAIR
	Contamination (hazardous or potentially hazardous)	If condition could threaten human life or health, container may be rejected at gate. Otherwise, segregate container and contact redelivery agent to establish type of contaminant and appropriate treatment. Do not attempt to repair until instructions are received.
	Tape over ventilators	REPAIR
	Paint attack due to corrosive cargoes or spillage	REPAIR
Interior, including walls, ceiling and floor	Materials(other than normal dust and dirt) stuck to caulking.	REPAIR
	Organic cargo residues, e.g. beans, grain, etc., within the floor cracks between floor boards or within sidewall corrugations	REPAIR
	Transferable stains, mold or fungus (except tire marks)	REPAIR
	Infestation(except non-transferable mold)	REPAIR
	Loose or not fully adhered tape or other material.	REPAIR
	Patch (of any size) of sticky glue, including sticky tape and any sticky adhesive residue	REPAIR
	Persistent odor	REPAIR
	Condensation or standing water	REPAIR
	Cargo securement devices, e.g. metal/wire straps, cables, chains, string, rope, etc., left on bars, rings, walls, ceilings, floors, etc.	REPAIR
	Graffiti	If not obviously related to carriage of cargo, REPAIR
Exterior	Graffiti	REPAIR





Words and Expressions

household	['haʊshəʊld]	*adj.*	家庭的；家用的
can	[kæn]	*vt.*	把……装罐；把……贮藏在密封的罐头里
bottle	['bɒt(ə)l]	*vt.*	把……装瓶封藏，把……灌入瓶内
palletize	['pælə,taɪz]	*vt.*	把……装在货盘上；用货盘装运
wrap	[ræp]	*vt.*	包裹住
taint	[teɪnt]	*n.*	感染；污染
lumber	['lʌmbə]	*n.*	木材
reflect	[rɪ'flekt]	*vt.*	反射，反映，表明
slippery	['slɪp(ə)rɪ]	*adj.*	滑的；致使打滑的
impede	[ɪm'pi:d]	*vt.*	妨碍，阻碍
lessee	[le'si:]	*n.*	承租人
objective	[əb'dʒektɪv]	*n.*	目的，目标
eliminate	[ɪ'lɪmɪneɪt]	*vt.*	除掉，消除
brush	[brʌʃ]	*v.*	刷
wipe	[waɪp]	*n./v.*	揩，擦
rub	[rʌb]	*v.*	磨擦
bare	[beə]	*adj.*	裸的，不持工具的
conjecture	[kən'dʒektʃə]	*n.*	推测，猜测，猜想
inorganic	[ɪnɔ:'gænɪk]	*adj.*	无机的；无机物的
spillage	['spɪlɪdʒ]	*n.*	溢出，溢出物，溢出量
caulk	[kɔ:k]	*vt.*	堵缝，用填料堵框架、管子等的缝隙
organic	[ɔ:'gænɪk]	*adj.*	有机的
transferable	[træns'fɜ:rəb(ə)l]	*adj.*	可转移的
stain	[steɪn]	*n.*	污染处，污点
fungus	['fʌŋgəs]	*n.*	真菌
tire	['taɪə]	*n.*	轮胎
adhere	[əd'hɪə]	*v.*	(使)粘附
patch	[pætʃ]	*n.*	斑点
stick	['stɪk]	*v.*	粘贴，粘住
glue	[glu:]	*n.*	胶，各种胶粘物
adhesive	[əd'hi:sɪv]	*adj.*	粘的，带粘性的
		n.	胶粘剂，粘合剂
standing	['stændɪŋ]	*adj.*	停止的，不流动的，静止的
strap	[stræp]	*n.*	带，固夹带
graffiti	[grə'fi:tɪ]	*n.*	(墙壁或其他公共场所的)涂写涂画



Notes

1. As a general guide, cleaning is required when material is present that is both transferable to cargo and that is visibly wet, oily or sticky, or that cannot be easily removed from cargo by brushing or dusting off without leaving stains. 一般原则是，如果发现污染物可能沾染货物，且明显潮湿、油滑或粘着，或无法通过拂刷或掸拭轻而易举、不留痕迹地从货物上清除，就要清洗。

先行词 material 后面跟了 3 个定语从句：①that is both transferable to cargo；②that is visibly wet, oily or sticky；③that cannot be easily removed from cargo by brushing or dusting off without leaving stains，构成多重关系从句。并且，由于定语从句部分较长，为了保持句子平衡将其移至句末。定语从句的用法详见第 14 章语法部分。

2. Furthermore, a less strict standard is applied to inorganic materials left in a container than to organic materials that may lead to mold or infestation. 此外，对箱内残留的无机物处理标准比有机物要宽松些，因为有机物可能会导致发霉或寄生虫。

定语从句 that may lead to mold or infestation 修饰 organic materials。关系代词 that 在定语从句中作主语，不能省略。定语从句的用法详见第 14 章语法部分。



Exercises

用中文或英文回答问题

1．集装箱清洗的首要目标是什么？

2．对干货箱和敞顶箱的清洁要求有什么不同？

3．怎样降低清洗成本？

4．怎样判断污染物是否会沾染到货物？

5．对箱底、箱顶和箱内其他部位的清洁要求有什么不同？

6．对无机物和有机物的清洁要求有什么不同？

7．箱内壁油漆表面损坏，需不需要修理？

8．绑扎环上留有一截绳子，需不需要修理？



Grammar Concerned

表语从句

表语从句在句中作系动词的表语。

一、That 引导表语从句，在非正式文体中 that 可以省略。

(1) My idea is that individual rights should be fully respected. 我的想法是，个人的权利应该得到充分尊重。

(2) All I can say is that I have nothing to do with it. 我能说的就是我与此事没有关系。

二、疑问词引导表语从句。

(1) Times are not what they used to be. 时代不同了。

(2) The problem is whether he can stick to his promise (or not). 问题是他能否信守诺言。

whether 表示"是否"，可以引导主语从句、宾语从句、同位语从句、表语从句等名词性从句；if 和 whether 同义，但只能引导宾语从句。

三、as if 引导表语从句。

It looked as if it was/were going to rain. 好像要下雨。

Extended Reading

40 ft High Cube Container Converted to Bicycle Display

A specialized bike manufacture has chosen to use a 40 ft High Cube Shipping container as an innovative way to transport and display their bicycles. That is, an ISO container has been used as a display and fitting center for excellent products.

A container was transported to a factory to undergo the transformation from standard 40 ft high cube container used to transport goods throughout the world into a unique new existence as a display for the new cutting edge, specialized bicycles. The container was first cleaned and primed to be prepped for further refabrication. Designers decided to have two steel sliding doors that would easily become the entrance and exit opened in the side wall. These steel sliding doors are an excellent and economical choice because they consume very little material. The doors were fixed on the corrugated container side with the only additional material being the steel frame welded to the cutout section and the rails that were made into the slider. These steel sliding doors are easy to open and close with rollers on the top and the bottom. After the steel sliding doors were installed, the interior and exterior of the container were painted candy apple red and white.

Shortly afterwards, the container was delivered to the site. And its first stop was Monterey, California, where the 21st Annual Sea Otter Classic was to be held. The Sea Otter Classic is a four-day celebration of cycling that welcomes over 8,000 athletes and 50,000 race fans and other bicycle enthusiasts. Hundreds of cyclists, including national and world champions, come to Sea

Otter to race, sign autographs, and share their racing techniques with fans. The Sea Otter Classic also holds the largest consumer bike exposition in North America. The expo hosts hundreds of vendors who display new products and offer samples and bargains. The container display users are excited about the ease of setting up the display, for they needed to spend at least 3-4 hours to set up a display in tents in the past. And they are also satisfied with the customization and portability of their innovative display. They feel that the container display truly sets them apart from the other vendors at the event (Fig.13.1). In fact, the use of the recycled container in this way marks a new era for display and transportation.



Fig.13.1 Container-turned bicycle display

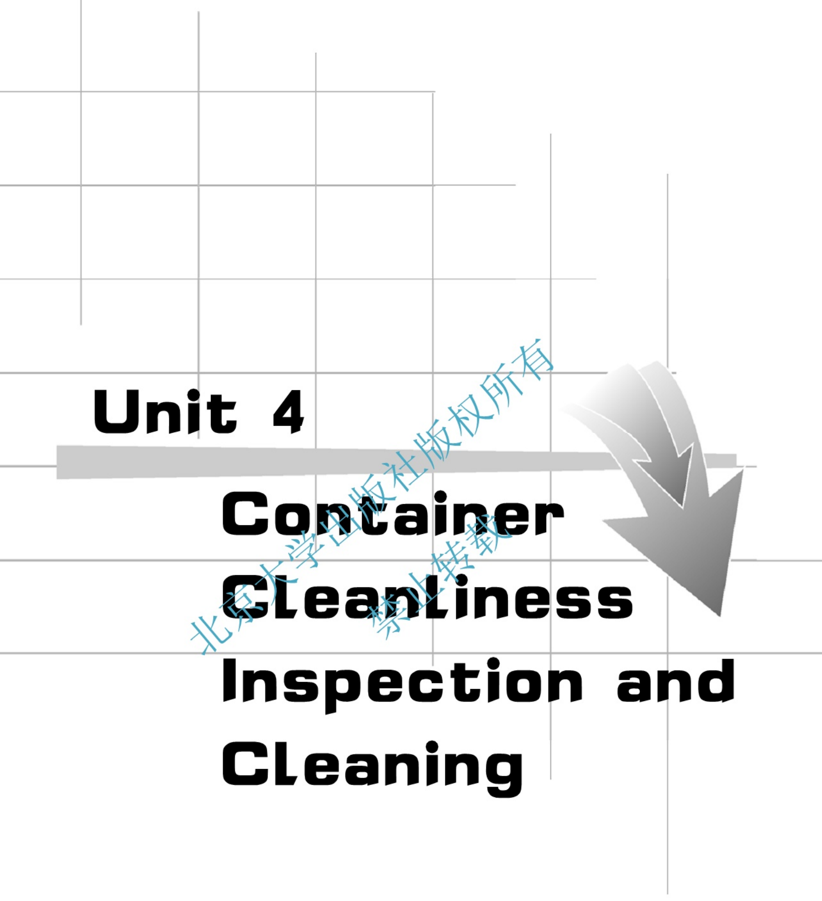
(资料来源：http://www.containertech.com/)

Words and Expressions

display	[dɪ'spleɪ]	*n./v.*	展出，陈列，展览
undergo	[ʌndə'gəʊ]	*vt.*	经历，经受
transformation	[trænsfə'meɪʃ(ə)n]	*n.*	变化，改造，转变
cutting edge			最前沿(商业、科技等领域)，尖端
prep	[prep]	*v.*	预备，准备
refabrication	['riː'fæbrɪkeɪʃ(ə)n]	*n.*	再制备，再加工
slide	[slaɪd]	*v.*	(使)滑动，(使)滑行
consume	[kən'sjuːm]	*v.*	消耗，耗尽
cutout	['kʌtˌaʊt]	*n.*	切下(或删掉)的东西
roller	['rəʊlə]	*n.*	滚动物，滚轴
shortly afterwards			不久以后，没过多久
site	[saɪt]	*n.*	场所，地方
Monterey	[mɒntə'reɪ]	*n.*	蒙特利
Sea Otter Classic			海獭经典(自行车节)
celebration	[selɪ'breɪʃ(ə)n]	*n.*	庆祝，庆祝会
cycling	['saɪklɪŋ]	*n.*	骑自行车运动，自行车比赛
race	[reɪs]	*n./v.*	(速度上的)竞赛
champion	['tʃæmpɪən]	*n.*	(比赛的)冠军，第一名
autograph	['ɔːtəgrɑːf]	*n.*	亲笔，(尤指名人)亲笔签字或署名



exposition	[ekspə'zɪʃ(ə)n]	*n.*	展览会，(国际)博览会
host	[həʊst]	*v.*	(作主人)招待客人；主办招待会等
vendor	['vendə]	*n.*	小贩，摊贩
sample	['sɑːmp(ə)l]	*n.*	样品
bargain	['bɑːgɪn]	*n.*	廉价商品；通过讨价还价成交的商品
tent	[tent]	*n.*	帐篷，帐棚
customization	[ˌkʌstəmaɪ'zeɪʃən]	*n.*	用户化，顾客化
set apart			区别；使显得与众不同，使显得突出
era	['ɪərə]	*n.*	时代，历史时期

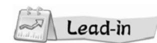


Unit 4

Container Cleanliness Inspection and Cleaning

Chapter 14

Cleaning Methods



Some common methods of cleaning containers and the general principles to choose the appropriate method are presented in the following chapter.



General Cleaning Methods and Typical Applications

This section contains general recommendations on methods appropriate for cleaning containers. These cleaning methods are listed in ascending order of severity.

1．Removal of Debris, Wire, Rope, Nails or Other Waste Materials

Pallet wood, cardboard packing remnants and other dunnage and debris should be carried out of the container. Cut away and remove wire, rope and other materials attached to lashing bars and rings. Protruding nails should be pulled out or hammered down so that their heads are flush with the surface of the floor.

2．Sweep Out

Dust, dirt and small remnants of cargo should be swept out of the container. Sweeping, however, does not necessarily result in the complete removal of all loose material. Residues of fine materials may remain in the corrugation recesses and between floor components. Unless they are organic (e.g., coffee beans, etc.), these materials are not harmful to dry-van cargo and are therefore acceptable. If organic material is caught between floor boards, scrape it off as is indicated below.

3．Scraping with a Flat or Shaped Tool

When organic residues are caught between floor planks or are stuck to interior caulking, a specially-shaped scraping tool may be used to remove them. Scraping is the method usually used for removing labels, tapes or other adhesive material. It can be followed by spot cleaning with a solvent to remove adhesive residues.

4．Spot Cleaning

Spot cleaning is applied when only small areas need to be cleaned. Spot cleaning may involve absorbing a liquid spill into a cloth or wiping an oil or other stain with solvent.

5．Power Sanding

Power sanding is an alternative spot-cleaning method that can be used to remove oil stains or other material from flooring. The stained spot is sanded down to clean material.

6．Washing

If light floor stains, fine dust and other materials remaining on container floors or walls cannot be removed by any of the methods listed above, wash with cold water at standard tap pressure with or without detergent.

7．Cold High-Pressure Wash

Floor stains, fine dust and other materials that cannot be removed from container floors or walls by any of the methods listed above can be cleaned by using cold water supplied by a pump-driven pressure washer, with or without detergent.

8．Hot High-Pressure Wash

Hot, high-pressure water supplied by a pump-driven, burner-heated washer with detergent is the most effective way to clean oil stains from container floors. It is also the standard way to remove

odors from all container types.

9. Over-Painting

Graffiti, wall stains, thin layers of dried adhesives, minor wall scratches, etc. can be painted over, providing that (1) the surface is cleaned first to ensure paint adhesion and (2) the resulting painted surface blends smoothly into the surrounding areas. Do not use this method for floor stains.

10. Power Grinding with an Abrasive Disk or Wire Brush/Repainting

Heavy layers of dried adhesive and heavy wall scratches may be ground away to bare metal and repainted.

11. Refurbishing, Using Abrasive Blasting and Repainting

Large areas of internal scratching, adhesive coating, stains, paint damage caused by corrosive cargoes and other such severe conditions can be cleaned by abrasive blasting followed by painting. This method may be applied to the entire interior or selectively to the affected areas only.

12. Component Replacement

Component replacement is the cleaning of last resort. It is usually applied to oil-soaked flooring that cannot be cleaned by multiple hot, high-pressure washings with detergent. It may also be appropriate in cases of flooring that has been severely contaminated by odor.

General Principles in Choosing Cleaning Methods

Cleaning should choose the least destructive, least complex and most economical cleaning method that is both effective and of minimal adverse environmental impact. The method chosen must not have any detrimental effect on any part of the container, e.g., original paint, wood floor, etc. (such as careless use of blasting equipment on the interior resulting in damage to adjacent parts). To avoid application of multiple methods to a single condition, careful consideration should be given to selecting the proper cleaning method before any action is taken. If necessary, test the effectiveness of the method on a small section of the affected area.



Words and Expressions

ascend	[ə'send]	*v.*	上升，登上
severity	[sɪ'verɪtɪ]	*n.*	严重
cardboard	['kɑ:dbɔ:d]	*n.*	卡纸板
remnant	['remnənt]	*n.*	残余物
dunnage	['dʌnɪdʒ]	*n.*	(货物装箱用的)垫料，衬垫等杂物
flush	[flʌʃ]	*adj.*	齐平的，同一平面的
fine	[faɪn]	*adj.*	细微的，非常小的
recess	[rɪ'ses]	*n.*	凹进之处
scrape	[skreɪp]	*v.*	刮，擦
spill	[spɪl]	*n.*	(液体)溢出，溢出物



sand	[sænd]	*vi.*	用砂纸磨，磨光
tap	[tæp]	*n.*	龙头
detergent	[dɪ'tɜːdʒ(ə)nt]	*n.*	清洗剂，洗涤剂
burner	['bɜːnə]	*n.*	燃烧器
blend	[blend]	*v.*	(使)混成一体，协调
grind	[graɪnd]	*v.*	磨，磨光
abrasive	[ə'breɪsɪv]	*adj.*	摩擦的，有研磨作用的
abrasive disk			砂轮
wire brush			钢丝刷
blast	[blɑːst]	*v.*	爆炸，喷发
abrasive blasting			喷砂
resort	[rɪ'zɔːt]	*n.*	凭借的手段(或方法)
soak	[səʊk]	*v.*	浸透，渗透
destructive	[dɪ'strʌktɪv]	*adj.*	引起破坏的，造成破坏的
minimal	['mɪnɪməl]	*adj.*	最小的；最少的；最低限度的
adverse	['ædvəːs]	*adj.*	不利的
detrimental	[ˌdetrɪ'ment(ə)l]	*adj.*	造成损害(或破坏)的，不利的

Notes

1. Graffiti, wall stains, thin layers of dried adhesives, minor wall scratches, etc. can be painted over, providing that (1) the surface is cleaned first to ensure paint adhesion and (2) the resulting painted surface blends smoothly into the surrounding areas. 涂写、箱壁上的污渍、干结粘着物薄层和箱壁上的小刮痕等均可涂漆覆盖，只要：(1)先清洗表面以保证油漆附着性；并且(2)涂漆后的表面与周围区域平滑衔接。

provided (that) 引导条件状语从句，表示“假如……”。定语从句的用法详见本章语法部分。

2. Cleaning should choose the least destructive, least complex and most economical cleaning method that is both effective and of minimal adverse environmental impact. 应该选择对于集装箱损害最小、最简便、最经济的既有效又对环境不利影响最小的清洗方法。

先行词 method 有 3 个形容词最高级 the least destructive、least complex 和 most economical 修饰，当先行词有形容词最高级修饰时，定语从句关系代词只能用 that 而不能用 which。定语从句的用法详见本章语法部分。

3. To avoid application of multiple methods to a single condition, careful consideration should be given to selecting the proper cleaning method before any action is taken. 为了避免在同一污染处采用多种方法，在采取任何措施前应该仔细考虑，选择适当的清洗方法。

before 引导时间状语从句 before any action is taken，意为“在采取任何行动之前”。状语从句的用法详见第 15 章语法部分。



Exercises

I. 用中文或英文回答问题

1．突出的钉子要怎样处理？

2．如果清扫后未完全清除所有零散物质怎样处理？

3．标签、胶带等粘性物质怎样处理？

4．地板的小区域污渍可以用什么方法清洗？

5．壁箱上干结的粘着物和刮痕怎样处理？

6．箱内大面积的刮痕、粘性涂层、污渍及由腐蚀性货物引起的漆面受损可以怎样处理？

7．集装箱地板油渍和箱内气味可以怎样清洗？

8．选择清洗方法的原则是什么？

II. 英译汉

1．scraping

2．power sanding

3．power grinding /repainting

4．cold high-pressure wash

5．over-painting

6．refurbishing, using abrasive blasting and repainting

III. 汉译英

1．清除

2．清扫



3．小面积清洗

4．冲洗

5．高压热水冲洗

6．部件替换

Grammar Concerned

定语从句

在复合句中修饰名词或代词作定语的句子叫定语从句。定语从句所修饰的词叫先行词，因为它总是处在定语从句的前头，比定语从句先行一步。定语从句由关系词(包括关系代词和关系副词)引导，关系词除了起引导作用外，在从句中还充当一定的成分。

定语从句又分为限定性定语从句和非限定性定语从句。限定性定语从句对先行词起限定的作用，把它的先行词限定在特定的意义之内，是先行词必不可少的修饰语，没有它整个句子的意思就会受到影响、就不完整；非限定性定语从句不对先行词起限定的作用，只对先行词起补充说明的作用，不是先行词必不可少的修饰语，没有它整个句子的意思不会受到影响，仍然完整。限定性定语从句和它的先行词之间不能用逗号隔开；而非限定性定语从句和它的先行词之间要用逗号隔开。

(1) Nanjing, where I lived for five years, is very hot in summer. 南京夏天非常热，我在那里生活过 5 年。

(2) Your father, whom I respect very much, is a kind old man. 你父亲是个很和善的老头，我很尊重他。

通过这几个例子可以看出，专用名词以及世界上独一无二的东西都不能有限定性定语从句，因为它们的意义本身已经非常清楚，不需要对其进行限定。

限定性定语从句

一、关系代词。

1．指人。

(1) 作主语 who, that。

① There are also those personnel who don't care as much about preventing damage. 也有员工不怎么注意损坏预防。

② He is a man that / who means what he says. 他是个说话算数的人。

(2) 作宾语 whom, that，在限制性定语中作宾语的关系代词可以省略，在口语中可用 who 代替 whom。

① This is just the man (whom/that) I want for the job. 这正是我要的做这份工作的人。

② Is he the manager (whom/that) you are looking for? 他是你在找的那位经理吗？

(3) 作介词宾语 whom, that。

定语从句中的介词通常置于关系代词之前，也可在关系代词之后，当关系代词在介词后面，只能用 whom 不能用 that，也不能省略；但是当介词放在从句末尾时，作为介词宾语的关系代词可以用 whom 也可以用 that，并且可以省略。

① Who is the boy with whom you were talking a moment ago?

Who is the boy (that/whom) you were talking with a moment ago? 你刚才和他说话的那个男孩是谁？

② I have three children, one daughter and two sons, all of whom graduated from the same university. 我有 3 个孩子：一个女儿、两个儿子，他们都毕业于同一所大学。

含有介词的短语动词一般不可拆开，介词仍放在动词之后。

Is that the boy whom you spoke of the other day? 那是你前几天提到的那个男孩吗？

2．指物。

(1) 作主语 which/that。

① A less strict standard is applied to inorganic materials left in a container than to organic materials that may lead to mold or infestation. 对箱内残留的无机物处理标准比有机物要宽松，因为有机物可能会导致发霉或寄生虫。

② This is the instruction manual which/that tells you how to operate the computer. 这是那本教你如何操作计算机的说明手册。

(2) 作宾语 which/that，在限制性定语中作宾语的关系代词可以省略。

① This measurement is then subtracted from the distance (that) the reference line has been spaced out from the component to determine the actual depth of the damage. 基准线抬离部件的距离减去这个测量值，得出实际损坏深度。

② The clock (which/that) my grandfather bought 20 years ago is still in good order. 我爷爷 20 年前买的钟还很准。

(3) 作介词宾语。

定语从句中的介词通常置于关系代词之前，也可在关系代词之后，当关系代词在介词后面，只能用 which 不能用 that，也不能省略；但是当介词放在从句末尾时，作为介词宾语的关系代词可以用 which 也可以用 that，并且可以省略。

① The characteristics of the substances to be carried determine the material of which the tank is made, while the pressure under which the cargo has to be transported influences its construction. 所运载物质的特性决定罐式箱的制造材料，运输压力影响罐式箱的结构。

② This is the bike for which I paid $ 100. 这就是我花了 100 美元买的那辆自行车。

③ The book (that /which) I got a lot of useful information from was written by a famous scientist. 我从中得到大量有用信息的那本书是一位著名科学家写的。

④ They're redecorating the room (which /that) a conference will be held in. 他们正在重新装修要开会的房间。

含有介词的短语动词一般不可拆开，介词仍放在动词之后。

The telephone ring which we have put up with too long is beginning to annoy our customers. 我们早就受够了的那个电话铃声现在开始惹怒我们的顾客了。



在"介词+关系代词"的结构中，也可用复杂介词如 by means of (用，依靠), as a result of (作为结果)等。

(1) This is the desk by means of which he jumped over the wall. 这就是他用来跳过墙去的那张桌子。

(2) She was running a fever, as a result of which she failed in the exam. 她当时正发烧，所以考试失败了。

在关系代词中，that 既可指人又可指物，在定语从句中既可作主语又可作宾语或表语。因此，在限定性定语从句中用 that 一般不会出问题。此外，以下情况只能用 that，不能用 which。

(1) 当并列的先行词既有人又有物时，用 that 不用 which。

① We were deeply impressed by the workers and their working conditions that we had visited. 我们参观过的工人及他们的工作条件给我们留下了深刻印象。

② We listened to him talk about the men and books that interested him. 我们听他谈论他感兴趣的人物和书籍。

(2) 关系代词在定语从句中作表语时，用 that 不用 which。

① The modern plane is no longer the machine(that)it was when first invented. 现代飞机不是刚发明时的那种飞机了。

② He doesn't seem to be the man that he was. 他似乎和过去不一样。

(3) 先行词为不定代词 all, little, none, any, every, no, much, anything, nothing，或有 all, no, much, little, none, any, every 修饰时，用 that 而不用 which。

① All the adjacent non-repairworthy components that are damaged must be repaired, even if they themselves are not damaged beyond the criteria limits. 邻近所有不需要修理的损坏构件也必须修理，即使它们本身并没有损坏到超出标准极限值。

② Everything that can be done has been done. 能做的一切都做了。

(4) 先行词有 the only, the very, 形容词最高级、序数词、the next, the last 修饰时，用 that 而不用 which。

① Cleaning should choose the least destructive, least complex and most economical cleaning method that is both effective and of minimal adverse environmental impact. 应该选择对于集装箱损害最小、最简便、最经济的既有效又对环境的不利影响最小的修理方法。

② This is the very book that I have been longing to get. 这正是我一直渴望得到的书。

(5) 先行词有 the same, such, so+*adj*.修饰时，用 as 作关系代词，不能用 which, who, whom，as 在定语从句中可作主语或宾语。

① We are facing the same problems as we did years ago. 我们正面临与几年前相同的问题。

② Let's discuss only such questions as concern us. 让我们只讨论与我们有关的问题。

偶尔 the same 后面也用 that。

He's wearing the same suit that he wore at Mary's wedding. 他穿着与他在玛丽的婚礼上穿的一样的衣服。

定语从句中的 that 除了引导定语从句外，还是定语从句的一个成分：在定语从句中作主语或宾语，作主语时不能省略，作宾语时可以省略；而同位语从句的 that 只是引导词，没有其他语法作用，在句子中不作句子成分，不能省略。

① The idea that he proposed at the meeting is sheer nonsense. 他在会议上提出的这个想法简直荒谬。

② The idea that some peoples are superior to others is sheer nonsense. 有些民族优越于其他民族这种想法简直荒谬。

3．whose 可指人也可指物，在定语从句中作定语，指物时可与 of which 互换。

(1) He is the man from whose house the picture was stolen. 他就是那个家里的画被偷了的人。

(2) We looked at the tower whose tip / the tip of which was golden. 我们看着金顶的塔。

二、关系副词。

关系副词的用法比较单一：when 指时间，在定语从句中作时间状语；where 指地点，在定语从句中作地点状语；why 只修饰一个词即 reason，在定语从句中作原因状语。

(1) A reference line is placed in a location where it is possible to measure deflections. 基准线设在可以测量变形的位置。

(2) The rain came at a time when it was not needed. 雨下得不是时候。

(3) He didn't give any reason why I had been fired. 他解雇我没给任何理由。

关系副词可以转换成"介词+which"的结构：when=at/on/in/during which; where=in/at which; why=for which。

(1) There are many companies in which responsible, quality-conscious staff plan and devise optimum transit procedures. 在很多公司中，有责任感和质量意识的员工会计划、制定出最佳的运输流程。

(2) I shall never forget the day when (on which) we first met. 我永远也不会忘记我们第一次见面的那一天。

(3) That is the reason why (for which) I'm in favour of the plan. 这就是我赞成这个计划的原因。

在非正式文体中，有时用 that 代替关系副词或相当于关系副词的"介词+which"，而且可以全部省略。

(1) I enjoyed all the years that (=when/during which) I was at collage 我享受读大学的那些年

(2) The direction(that)(=in which)the heavenly bodies move can't be changed. 天体运行的方向是不可改变的。

(3) Do you know the reason that(=why/for which)he is not happy? 你知道他为什么不高兴吗？

三、一个先行词后面可以跟一个以上的定语从句，这种现象叫双重关系从句。

(1) Inspections of containers are made in order to reveal conditions that may be unsafe or which may reduce the usefulness or life of the container. 对集装箱进行检验是为了找出可能的不安全状况或可能降低集装箱使用性能或寿命的状况。

(2) Here are some words which are often used but which are very confusing. 这里有些常用但非常混乱的词。

若定语从句过长，为了保持句子平衡，可将其定语从句移至句末。

(1) Open-sided containers also exist which are open only on one side. 也有仅一侧敞开的敞侧箱。

(2) The inspector should identify wear and deterioration conditions, so that timely repairs can be made which maximize the useful life of the container. 验箱员应鉴别磨蚀和老化情况，以便进行及时修理，最大限度地延长集装箱的使用寿命。



(3) Cleaning is required when material is present that is both transferable to cargo and that is visibly wet, oily or sticky, or that cannot be easily removed from cargo by brushing or dusting off without leaving stains. 作为一般原则，如果发现污染物可能沾染货物，且明显潮湿、油滑或粘着，或无法通过拂刷或掸拭轻而易举、不留痕迹地从货物上清除，就要清洗。

非限定性定语从句

一、非限定性定语从句用 who, whom, which 和 whose，不用 that。

(1) An inspector suspects that the dent, which bulges out from the outboard corrugation, might exceed the IICL criterion. 验箱员怀疑这处从波纹板外凸面向外的凸出可能超出了 IICL 标准。

(2) Tank containers almost always have as their basis a steel frame, into which tanks of various shapes may be inserted. 罐式箱几乎都有钢制框架作为基座，框架中可以安装各种形状的罐箱。

(3) This usually happens in the case of panel bulges, where the reference line cannot be positioned from the corner fittings over the damage. 板材凸出时，无法通过角件在损坏上方设置基准线，就常常发生这种情况。

在非限制定语从句中，关系代词作宾语时不能省略。

(1) She introduced me to her husband, whom I hadn't met before. 她把我引荐给她丈夫，我以前从来没有见过他。

(2) The book, which you're reading, is mine. 你正在读的那本书是我的。

二、which 或 as 引导非限定性定语从句可以指整个主句。

(1) He did well in the physics exam, which surprised me. 他物理考得很好，这使我很吃惊。

(2) The man was a teacher, as / which was obvious from his way of speaking. 由那个男人说话的样子，可明显看出他是个老师。

在非限制性定语从句中，as 和 which 均可指整个主句，用法的区别如下。

(1) 当主句和从句语义一致时，用 as；反之，用 which。

① He made a long speech, as was expected. 不出所料，他作了长篇讲话。

② He made a long speech, which was unexpected. 出乎意料，他作了长篇讲话。

③ Tom drinks a lot every day, which his wife doesn't like at all. 汤姆每天喝很多酒，他妻子很不喜欢这一点。

(2) 由 which 引导的定语从句放在主句之后；而由 as 引导的定语从句可以前置，即，既可放在主句之前，也可放在主句之后。当 as 在从句中作主语时，常用如下句型：As is known, As is said, As is reported, As is announced 等。

① As experience has shown and measurements have confirmed, the shipping stresses of different modes of transport differ markedly. 经验表明且测量已证实，不同运输形式的航运应力大不相同。

② As we all know, the earth revolves round the sun. 众所周知，地球绕着太阳转。

③ As was expected, he performed the task successfully. 正如所预料的那样，他成功地完成了任务。

定语从句的谓语动词

一、关系代词作定语从句的主语，从句谓语动词的形式取决于先行词的单复数。

(1) An inspector should have access to a number of other tools that are needed for less common measurement situations. 验箱员应该有一些其他工具，满足不太常规的测量所需。

(2) The corrosion, paint failure or destruction of markings that accompanies damage is also considered “damage”. 那些伴随损坏出现的腐蚀、油漆表面损坏或标贴破坏等，也同样被视为“损坏”。

(3) There are also those personnel who don’t care as much about preventing damage. 也有员工不怎么注意损坏预防。

二、定语从句中的时态。

如果主句是一般将来时或过去将来时，从句的动作与主句的同时发生，那么该从句要用一般现在时表示一般将来时，用一般过去时表示过去将来时；如果从句和主句的动作在将来不同的时间发生，则两部分都要用将来时。

(1) There will be a special price for anybody who orders a suit in the next two weeks. 任何人在下两周内定做套装都将享受特价优惠。

(2) I would give her anything that she asked for. 她要什么我就给她什么。

(3) Those who will go abroad for training next year will start learning English tomorrow. 那些明年出国受训的人员，将从明天开始学习英语。

Extended Reading

Container Converted to House Computer Data

In San Gorgonio Pass, one of the windiest places in California, a wind farm was established in 1982, and has become one of three major wind farms in California. During the years, numerous wind turbines have become part of the natural landscape, each ranging from 80 to 160 feet in height. Recently, San Gorgonio Farm planned to create a space that need to be economical and extremely secure to house the computer equipment that monitors the electrical efficiency of the wind farm.

They had a 20 ft Container modified to meet the needs (Fig.14.1). The container was insulated throughout the interior to ensure a cool temperature inside the container. A 36-inch corrugated door was then cut into the 20 ft Container. The corrugated door was then insulated as well, and a locking system that is safe and secure was installed. Since the container would essentially become the data center to monitor the power generated from the wind turbine, a heavy duty electrical package was needed as well. Using a shipping container and adding the proper modifications ensured security and reassured that the sensitive equipment is kept safe in a temperature-controlled environment.

Using Shipping containers is ideal for creating secure spaces because they are designed and prefabricated to do so. As containers are sealed and constructed of steel, they are secure, wind and water proof, and even rodent-proof. In addition, as shipping containers are completely portable, if San Gorgonio decides to move the power monitoring system to a different area, all they need to do is to move the container.



This is an amazing project because it is not only completely green, but is more economical in the sense that building this would have been far more expensive and probably not as secure with other materials besides steel. And it also saves money in the long run because shipping containers tend to outlast other buildings constructed of materials besides steel.



Fig.14.1 Container-turned Computer data center

The shipping container provides a secure storage solution for the wind farm that generates a substantial amount of the power to Southern California. Seeing the container go through this transformation was really interesting, and it is thrilling to see another interesting use of ISO shipping containers, that is, they are beginning to be used to house computer data.

(资料来源：http://www.containeralliance.com/)



Words and Expressions

house [haʊs] *vt.* 存放(货物)，收藏

San Gorgonio Pass 圣乔诺隘口

windy ['wɪndɪ] *adj.* 多风的，风大的

wind farm 风力发电厂

turbine ['tɜːbaɪn] *n.* 涡轮机，

monitor ['mɒnɪtə] *v.* 监控，监测

essentially [ɪ'senʃ(ə)lɪ] *adv.* 本质上，实质上

heavy duty 重型，大负载

electrical package 电源组

reassure [riːə'ʃʊə] *vt.* 再保证

prefabricate [priː'fæbrɪkeɪt] *vt.* 预制；预造

be constructed of 由……构造，源于……

rodent ['rəʊd(ə)nt] *n.* 啮齿目动物

in the long run 从长远看来

outlast [aʊt'lɑːst] *vt.* 比……耐久，比……持久

solution [sə'luːʃ(ə)n] *n.* 解决，解决方法

substantial [səb'stænʃ(ə)l] *adj.* 多的，大量的

thrilling ['θrɪlɪŋ] *adj.* 令人激动的，颤动的

Chapter 15

Condition Photographs and Recommended Action



In this chapter, some photographs are given to illustrate how to apply appropriate cleaning methods listed in last chapter to real practice.



Condition Photographs: Dry-vans and Open-tops

In order to assist the container shipping, leasing, inspection and repair industries in choosing appropriate cleaning methods for each type of condition if cleaning should be required, a variety of conditions are shown by means of 78 color photographs in the *General Guide for Container Cleaning*. Below each photograph, a caption describes the condition shown, and a small table provides the information including the container type and the action (if any) required if the condition is present. (Note that the *Guide* differentiates between dry-van and open-top container in determining if a container requires cleaning.) And a brief recommendation on the appropriate cleaning method to apply is also provided when cleaning is required.

The condition photographs shown in this *Guide* are not meant to depict all possible conditions that may appear in or on actual containers in the field. The photographs are representative of common conditions as a reference guide only. To determine if a specific condition requires cleaning, an inspector should compare the dirty or unclean conditions found in the container with the photograph(s) that most closely depict the condition and consult the method provided for the corresponding photo most closely matching that condition in order to choose appropriate cleaning methods.

Following are some of the 78 color photographs illustrating typical conditions an inspector may find when examining a dry-van or open-top container for cleanliness (Table 15.1).

Table 15.1 Reference Index to Photographs

Component	Condition	Fig.No.
Floor	Stains	15.1
	Cargo residues	15.2
	Burn marks	15.3
Walls	Dust and dirt	15.4
	Mold	15.5
	Tape	15.6
	Adhesive	15.7
	Dunnage	15.8
All interior surfaces	Hazardous material	15.9
Exterior	Graffiti	15.10–15.11
	Spillage	15.12

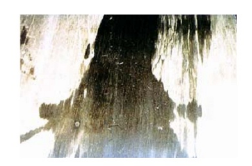


Fig.15.1　Transferable, damp, liquid stain that would damage dry-van general cargo but not open-top cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Floors	Floor stains	Dry-van	Repair	Cold high-pressure wash
		Open-top	No repair	Not applicable



Fig.15.2　Organic residue (e.g., coffee beans) remaining inside container

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Floors	Cargo residues	Dry-van	Repair	Scrape/sweep
		Open-top	Repair	Scrape/sweep



Fig.15.3　Transferable burn marks on floor that could damage dry-van general cargo and are not acceptable to shippers or lessees for dry-vans, but are acceptable for open-tops

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Floors	Burn marks	Dry-van	Repair	Power sanding
		Open-top	No repair	Not applicable





Fig.15.4 Dust and dirt on walls that will damage dry-van general cargo but not open-top cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Walls	Dust and dirt	Dry-van	Repair	Washing
		Open-top	No repair	Not applicable

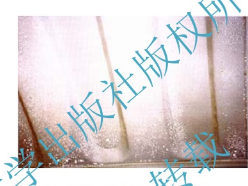


Fig.15.5 Mold and/or mildew

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Walls	Mold	Dry-van	Repair	Hot high-pressure wash
		Open-top	Repair	Hot high-pressure wash

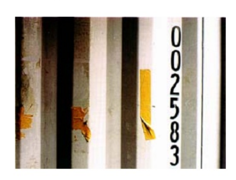


Fig.15.6 Tape remaining on walls that would not be acceptable to a shipper or lessee for shipment of cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Walls	Tape	Dry-van	Repair	Scrape/spot clean
		Open-top	Repair	Scrape/spot clean



Fig.15.7　Dry adhesive that would not be acceptable to a shipper or lessee for shipment of cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Walls	Adhesive	Dry-van	Repair	Power grind/paint
		Open-top	Repair	Power grind/paint



Fig.15.8　String attached to lashing ring that would not be acceptable for shipment of cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Walls	Dunnage	Dry-van	Repair	Remove
		Open-top	Repair	Remove



Fig.15.9　Evidence of possible toxic or hazardous material regardless of quantity or transferability

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
All interior surfaces	Hazardous material	Dry-van	Repair	*
		Open-top	Repair	*

* The container may be rejected at the gate, at the discretion of the depot operator. Otherwise, the container must be segregated and the redelivery agent contacted to establish the type of contamination present and the appropriate action required.





Fig.15.10 Customer marks that would not be acceptable for shipment of dry-van or open-top cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Exterior	Graffiti	Dry-van	Repair	Spot clean/paint
		Open-top	Repair	Spot clean/paint



Fig.15.11 Graffiti that would not be acceptable for shipment of dry-van or open-top cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Exterior	Graffiti	Dry-van	Repair	Paint over
		Open-top	Repair	Paint over



Fig 15.12 Spillage on exterior that attacks paint and that would not be acceptable for shipment of dry-van or open-top cargo

Component	Condition	Container Type	Action Required if This Condition Is Present	Recommended Cleaning Method
Exterior	Spillage	Dry-van	Repair	Blast/paint
		Open-top	Repair	Blast/paint

Safety and Environmental Concerns

Inspectors and repair personnel should observe safety precautions both when inspecting and cleaning containers.

If any residue or odor might reasonably be expected to be harmful to personnel or the environment, the redelivering agent must be located immediately to seek advice. If the condition is identified as hazardous, the cleaning depot must seek specialist advice on the correct method of cleaning. Do not attempt to clean until the possibly hazardous substance has been identified and the appropriate cleaning instructions have been received. Certain innocuous-looking substances can react violently even with water, creating danger to persons and property.

If conditions warrant, protective clothing should be worn, such as gloves, masks, etc. Care should be taken when handling cleaning materials, especially in regard to possible chemical reactions resulting from the combination of the cleaning agent used and the condition being cleaned. If solvents are used, make sure that the area is well ventilated and that there are no sparks or open flames in the vicinity.

Dispose of all cleaning agents and application materials in an environmentally responsible manner.

Words and Expressions

by means of			用，通过，借助于
caption	['kæpʃ(ə)n]	*n.*	(图片的)说明文字；(文章的)标题
differentiate	[ˌdɪfə'renʃɪeɪt]	*v.*	区别，区分；区别对待
be meant to			打算，有意要
depict	[dɪ'pɪkt]	*vt.*	描绘，描述
representative	[reprɪ'zentətɪv]	*adj.*	代表的，表现的
be representative of			代表……，是……的代表
damp	[dæmp]	*adj.*	潮湿的
mildew	['mɪldjuː]	*n.*	霉，霉菌，霉层
toxic	['tɒksɪk]	*adj.*	有毒的；中毒的
discretion	[dɪ'skreʃ(ə)n]	*n.*	判断，辨别
innocuous	[ɪ'nɒkjʊəs]	*adj.*	无害的，无毒的
violently	['vaɪələntlɪ]	*adv.*	激烈地，猛烈地
property	['prɒpətɪ]	*n.*	财物，财产
warrant	['wɔr(ə)nt]	*v.*	批准，许可
in regard to			关于，对于
spark	[spaːk]	*n.*	火星，火花
		v.	点火；激发；闪光
flame	[fleɪm]	*n.*	火焰





Notes

1. And a brief recommendation on the appropriate cleaning method to apply is also provided when cleaning is required. 在需要清洗时还提供了有关合适的清洗方法的简明建议。

when 引导的时间从句可以放在主句前，也可以放在主句后。状语从句的用法详见本章语法部分。

2. If any residue or odor might reasonably be expected to be harmful to personnel or the environment, the redelivering agent must be located immediately to seek advice. 如果验箱员有理由认为任何残留物或气味会对人员或环境造成危害，他必须找空箱回收代理人寻求建议。

if 引导条件状语从句 if any residue or odor might reasonably be expected to be harmful to personnel or the environment 表示"如果有理由认为任何残留物或气味对人员或环境有害"。状语从句的用法详见本章语法部分。

3. Do not attempt to clean until the possibly hazardous substance has been identified and the appropriate cleaning instructions have been received. 在可能的危险物质得到确认并接到适当的清洗指令之前，切莫试图清洗。

not…until/till…表示"直到……才开始一个动作"，因此本句可译为"在可能的危险物质得到确认并接到适当的清洗指令之后，再尝试清洗"。状语从句的用法详见本章语法部分。



Exercises

用中文或英文回答问题

1．怎样根据《集装箱清洗一般指南》选择适当的清洗方法？

2．如污染情况可能威胁到人员生命健康，应该怎样处理？

3．为什么必须在危险物质得到确认并接到适当的清洗指令后进行清洗？

4．在清洗中使用溶剂时应注意什么？

5．思考：怎样才能以对环境负责的态度清洗集装箱？

Grammar Concerned

状语从句

状语从句在复合句中作主句的状语，它可根据功能分为时间、地点、原因、条件、方式、让步、目的、结果状语从句。



一、时间状语从句。

1．when 引导的从句动作可以与主句动作同时发生也可以先于主句的动作，可以表示较短的动作也可以表示较长的动作。

(1) A brief recommendation on the appropriate cleaning method to apply is also provided when cleaning is required. 在需要清洗时还提供了有关适当清洗方法的简明建议。

(2) When they got home, I was cooking dinner. 他们回家的时候我在做饭。

when 还可以表示 and just at the moment。

(1) We were sleeping when suddenly the earthquake happened. 我们正在睡觉，突然地震发生了。

(2) They were running quickly across the road when they heard the sound of a truck coming. 他们正快速地穿过马路，忽然听到了卡车开来的声音。

(3) I was about to go out when the telephone rang. 我正要出去，这时电话响了。

2．while 引导的从句动作与主句的动作是同时发生的、平行的，常表示一个较长的动作，故从句的谓语动词用延续性动词不用瞬间动词。

(1) Strike while the iron is hot. 趁热打铁。

(2) Please do not trouble me while I am writing my homework. 我写作业时请不要打扰我。

3．as 引导从句动作与主句动作同时发生，强调同时性。

(1) Sometimes, short hoses are incorporated so as to be able to direct the cargo as it is unloaded. 有时候也包含短软管，以便能够在卸货时引导货物。

(2) As we walked in the dark street, we sang songs and talked loudly. 当我们在黑洞洞的街上走路时我们高声地唱歌说话。

4．before 的基本意义为“在……之前”。

To avoid application of multiple methods to a single condition, careful consideration should be given to selecting the proper cleaning method before any action is taken. 为了避免在同一污染处采用多种方法，在采取任何措施前应该仔细考虑，选择适当的清洗方法。

before 还可以表示“……才……”、“……就……”。

(1) The plane landed at Beijing Airport before we knew it. 飞机降落在北京机场我们才知道。

(2) It was two days before he came to himself. 他两天后才醒过来。

(3) It won’t be long before he gets well. 他不久就会康复的。

before 还可表达“还未来得及……就……”，其后常跟 could 或 had time to do。

Before I could explain, the teacher drove me out of the classroom. 我未来得及作解释，老师就把我赶出了教室。

5．after 表示“在……之后”。

All the new metal components that will not be exposed after repair is complete have been cleaned and primed. 所有修理完成后不暴露在外的新加金属构件在盖上以前都进行了清洁并涂上了底漆。

6．since 引导时间状语从句“自……以来”，since 从句用过去时，主句则用完成时。

(1) She has never called on me since she moved to the country. 自从她搬到乡下之后就没来看过我。

(2) It is / has been a year since they got married. 他们结婚已有一年。



7．till/until。

(1) 在肯定句中，表示一个延续性的动作“直到……为止”，主句动词为连续性动词。

① Such a container must be segregated until the condition has been established, appropriate treatment advice provided and treatment procedures performed if required. 这样的集装箱必须隔离，直至情况明确，得到了适当的处理建议，并在必要时执行了处理程序为止。

② I will stay here and watch the baby until you return. 我会待在这里看着孩子直到你回来。

(2) 在否定句中，表示“直到……才”开始一个动作，主句谓语动词为短暂性动词。

① Do not attempt to clean until the possibly hazardous substance has been identified and the appropriate cleaning instructions have been received. 在可能的危险物质得到确认并接到适当的清洗指令之前，切莫试图清洗。

② Until you told me I had no idea of what had happened in the school. 直到你告诉我，我才知道了学校里发生的事。

till/not…till 与 until/not…until 基本可以互换，但是在句首时只能用 until 不能用 till。

① Until the last minute of the match we kept playing. 我们坚持到比赛的最后一分钟。

② Not until he had finished his work did he go home. 直到做完工作他才回家。

not until 位于句首时，主句需要部分倒装结构。

Not until the war ended did they meet again. 直到战争结束他们才再次相见。

可以用 It is/was not until…that…强调。

It was not until the war ended that they met again. 直到战争结束他们才再次相见。

8．once 表示“一旦……”。

The most difficult part of an inspection is distinguishing between what is acceptable and what is not acceptable, once a defect has been identified. 验箱的最困难之处也许是在发现一个缺陷后确定其是否可以接受。

9．as soon as 表示“一……就……”。

I will go there as soon as I have finished my breakfast. 我一吃完早饭就去那里。

10．hardly…when…、no sooner…than…句型表示“一……就……”，when/than 前面用过去完成时，后面用一般过去时。

Hardly had he entered the room when the telephone rang. 他刚走进房间，电话就响了。

No sooner had he heard the news than he fainted. 他一听到那个消息，就晕了过去。

11．表示时间的名词词组 every/each time, the moment, the first time, the last time 也可引导时间状语从句：every time/each time=whenever 每当；the first time 第一次；the last time 上一次。

(1) Whenever (it is) possible, damaged components or portions of components should be straightened, welded, or straightened and welded, rather than removed and replaced with inserts, sections or entire replacement components. 只要可能，应对损坏的部件或部分构件进行矫直、焊接或矫直并焊接，而不是移除然后以镶块、部分替换件或整个替换件来代替。

(2) Every time I met him, I found him to be taller. 每次我见到他，我都觉得他长高了。

(3) The first time I saw her, I fell in love with her. 我第一次见到她，就爱上了她。

需要强调的是在时间状语从句中，动作未发生，需用一般时表示将来时。

二、地点状语从句。

地点状语从句的作用是具体交待主句动作发生的地点，连词用 where，wherever。

(1) Make a mark where you have any doubts or questions. 有疑问的地方可以做个记号。

(2) Wherever he went, he was warmly welcome. 无论他走到哪里，都受到热烈欢迎。

三、原因状语从句。

1．because“因为”表示必然的因果关系。语气最强，所陈述的理由是全句的重点，从句一般放在主句后面。

The string line cannot be placed directly on either side of the web because the adjacent damage interferes with running the line over the entire length of the crossmember. 腹板两侧无法直接安放线绳，因为相邻损坏使线绳无法跨过底横梁的全长。

回答 why 的问句及在强调句中若强调原因状语从句，只能用 because。

(1) — Why were you late？ 一为什么迟到了？

— Because the traffic was too heavy. 一因为交通太拥挤。

(2) It was because he was careless that he failed. 他是因为不小心才失败的。

2．since, as“既然”表示对方已经知道、比较明显的原因。语气比 because 弱，主句是全句中心，从句可以放在句首也可以放在句尾，经常在句首。

(1) Since the first dent measure the exact limit for non-repairworthy damage, it need not be repaired. 因为第一个凹损的测量值正好等于不需要修理的损坏的极限值，所以它不必修理。

(2) As the camber (curvature) of the roof cannot be followed by the reference line, the damaged measurement is made from a reference line placed horizontally across the roof sheet width. 由于基准线不能沿箱顶拱形(曲面)行走，水平设一条基准线横跨顶板宽度进行测量。

3．now that 表示“既然”。

Now that John has arrived, we can begin. 既然约翰已经到了，我们可以开始了。

4．for 是并列连词，引导的是并列句，用来补充说明推断的理由或对前面的分句加以解释。语气较弱，for 引导的句子只能后置。

(1) It is morning, for the birds are singing. 天亮了，因鸟儿在鸣叫。

(2) We must be off now for the match starts at 7:00. 我们得走了因为比赛在七点开始。

四、条件状语从句。

1．条件状语通常由 if 引导，表示“如果”。

(1) If any residue or odor might reasonably be expected to be harmful to personnel or the environment, the redelivering agent must be located immediately to seek advice. 如果验箱员有理由认为任何残留物或气味会对人员或环境造成危害，他必须找空箱回收代理人来寻求建议。

(2) I will ring you up if he arrives on time. 如果他按时到达我会给你打电话的。

2．条件状语由 unless 引导，表示“如果不”、“除非”。

(1) Do not perform a repair more extensive or involved than is necessary to achieve a satisfactory result, unless doing so will be more economical to perform than a simpler repair. 切勿超过达到满意效果所需进行更大范围或过度的修理，除非这样做比简单的修理操作起来更经济。

(2) I will not lend the book to you unless you can return it in time. 除非你能及时归还，否则我不会把书借给你的。



3．引导条件状语从句还有 as/so long as 只要，provided (that)假如，on condition that 条件是，in case 万一，suppose/supposing 假如。

(1) Graffiti, wall stains, thin layers of dried adhesives, minor wall scratches, etc. can be painted over, providing that the surface is cleaned first to ensure paint adhesion and the resulting painted surface blends smoothly into the surrounding areas. 涂写、箱壁上的污渍、干结粘着物薄层和箱壁上的小刮痕等均可涂漆覆盖，只要先清洗表面以保证油漆附着性并且涂漆后的表面与周围区域平滑衔接。

(2) I'll lend it to you as long as you handle it with care. 只要你小心使用，我会借给你的。

(3) In case anything important happens, please call me up. 万一发生重要的事情，请打电话给我。

(4) Suppose/Supposing that this is not the right way to the station, what shall we do. 如果这不是去车站的路，我们该怎么办？

需要强调的是在条件状语从句中，动作未发生，需用一般时表示将来时。

五、方式状语从句。

as 引导方式状语从句，表示“依照……”、“像……一样”。

(1) I will do as you advice. 我会照你的忠告去做。

(2) Leave it as it is. 把它维持原状好了。

as 与 like 均可表示“像”，但 as 为连词，后接从句或介词短语；like 为介词，后接名词或代词。

(1) On Friday, as on Monday, the meeting will be at 3:30. 周五和周一一样，三点半开会。

(2) Jim is very much like his father. 吉姆很像他父亲。

六、让步状语从句。

1．though, although 表示“虽然，尽管”，引导让步状语从句陈述基本事实，不能与 but 同时使用，但在主句句中可加 still 或 yet 以加强语气。although 比较正式，语气重，通常置于句首；though 可以放在句首或句末。

(1) Although such containers may have special equipment, such as stanchions, fold-down end walls, lashing equipment etc., they are often described in specialist literature as containers without additional equipment. 虽然这种集装箱可能有专门设备，譬如支柱、下折端壁，绑扎设备等，专业文献中常常把它们称为无附加设备的集装箱。

(2) I won't hire him though he is a talented man. 尽管他很有才华，但我不会雇用他。

although 仅作连词，不能放在句末；though 可以作副词，意思是“然而、不过”，不能放在句首，可以放在句末用“,”隔开。

It was a quiet party. I had a good time, though. 这是个安静的聚会。尽管如此我还是玩得很开心。

2．as 表示“虽然”，必须用倒装结构，把从句的表语、状语或谓语动词放在句首。

(1) Disabled as he is, he tries his best to serve the people. 他虽然残疾，但是还是尽力为人民服务。

(2) Much as I admire his courage, I don't think he acted wisely. 虽然我很佩服他的勇气，但是我认为他做得并不明智。

(3) Lose money as I did, I got a lot of experience. 虽然我失去了钱，但是却获得了很多经验。

3．while 表示“虽然”。

(1) While containers are built of durable materials, they are not invulnerable to damage or the deteriorating effect of the elements. 尽管集装箱是用耐用材料制成的，仍无法避免构件的损坏或老化。

(2) While I understand your viewpoint, I don’t agree with you. 虽然我理解你的观点，但我还是不同意。

while 还可以表达转折对比，译为“……而……”。

Their country has plenty of oil, while ours has none. 他们国家盛产石油，我们国家却一点也没有。

4．even if/even though 表示“即使”。

(1) All the adjacent non-repairworthy components that are damaged must be repaired, even if they themselves are not damaged beyond the criteria limits. 邻近所有不需要修理的损坏构件也必须修理，即使它们本身并没有损坏到超出标准极限值。

(2) The dent must be repaired, because the original profile has been damaged by 40 mm (1-9/16 in), even though only 10 mm (3/8 in) was added to the dent present when the container was received. 此凹损必须修理，因为虽然与接受该箱时相比，其凹损深度仅增加了 10 mm (3/8 英寸)，但与其本来的形状相比较，损坏已达 40mm (1-9/16 英寸)。

5．whether…or …引导让步状语，意为“不管……还是……”。

(1) It’s required that packers be instructed as to the forces acting on the cargo during transport, whether (it is) by road, rail or sea. 要求向装箱工人指明运输期间作用于货物上的各种应力，不管是公路、铁路还是海上运输。

(2) I will study abroad whether my parents agree or not. 不论我父母同意与否，我都要出国留学。

引导让步状语从句只能用 whether，不能用 if。

6．however/no matter how…表示“无论怎么……”，类似的句型还有 whatever/no matter what 等。

(1) We’ll have to finish it, however long it takes. 不管花多长时间，我们必须把它做完。

(2) However I tried to explain, he wouldn’t listen. 无论我怎么解释，他就是不听。

(3) Whatever / No matter what may happen, we won’t change our plan. 无论发生什么，我们都不会改变计划。

需要强调的是在让步状语从句中，动作未发生，需用一般时表示将来时。

七、目的状语从句。

1．由 so that, in order that 引导目的状语从句，从句中谓语通常用 may, might, can, could, will, would，in order that 引导的从句可置于句首也可置于句末；so that 引导的从句只能放在主句之后。

(1) The inspector should identify wear and deterioration conditions, so that timely repairs can be made which maximize the useful life of the container. 验箱员应鉴别磨蚀和老化情况，以便进行及时修理，最大限度地延长集装箱的使用寿命。

(2) In order that he could make money, he did anything. 为了赚钱，他无所不为。



2．in case, for fear that“以防，以免”引导目的状语从句。

(1) Take an umbrella in case it rains. 带把伞，以防下雨。

(2) I hid the book for fear that she would see it. 我把书藏起来，以免被她看见。

八、结果状语从句。

1．so, so that 引导结果状语从句。

(1) An impact to a corner post has pushed material outward so that it could possibly exceed the IICL criteria for end frame dimensions of “ISO+5 mm (3/16 in)”. 撞击使角柱材料外凸，有可能超出 ISO+5 mm (3/16 英寸)的 IICL 端框尺寸标准。

(2) He made a wrong decision, so that half of his lifetime was wasted. 他做了错误决定，结果浪费了半生。

2．so…that，such…that 引导结果状语从句。

(1) In some cases, there is additional damage to the component so that the reference line cannot be positioned at the end(s), or the component is so long that it is not practical to position a reference line over its entire length. 有时候，部件别处也有损坏，结果不能在两端设置基准线，或者部件太长，基准线无法跨越其整个长度。

(2) It was such a bad accident that dozens of people were killed. 事故严重，几十人丧生。

若 so 或 such 位于句首，主句需部分倒装。

So fierce was their dog that no one dared to come near. 他们的狗真凶，没有人敢走近。

Extended Reading

How to Build a House with Metal Shipping Containers

Shipping containers transport the world's trade but often create environmental problems when their moving days are over.

So what do you do with abandoned shipping containers? Nowadays, you build a house. Used shipping containers assemble like building blocks to meet various housing needs, from temporary shelters to luxury beach houses. Sturdy, affordable and environmentally friendly, a house built with metal shipping containers is an idea whose time has come. Does this spark an idea?

Instructions

1. Design the layout of the container house. Experienced do-it-yourselfers should be able to tackle a simple one- or two-container design project, but complex designs need a building professional. The good new is more architects and builders are specializing in cargo-container architecture, with plans and ready-made kits already available.

2. Find local shipping container resellers for containers. Typically, used containers come in two sizes, 40 by 8 by 8.5 feet and 20 by 8 by 8.5 feet, and cost from $1,000 to $3,000 each. Make sure the final cost includes transportation charges to the building site.

3. Build a raised foundation using poured concrete or block foundations with plenty of rebar to provide a solid base. Embed steel plates into the foundation's corners.

4. Move containers into position with a crane. Weld container corners to the steel plates already

embedded into the foundation. Also, weld together the seams where two containers meet.

5. Cut openings for doors and windows using a plasma metal cutter. Remove sidewalls where containers meet to create larger interior spaces (or make the cuts before the containers are placed onto the foundation).

6. Complete the interior finishing following traditional house building practices. Run plumbing and electrical wiring to meet local code. Add insulation between the outside and interior walls or use a spray-on ceramic insulation, inside and out. Frame doors, windows and interior walls using wood or metal framing. Lay down plywood subfloors. Finish interior decorating.

7. Leave the exterior in the original shipping container state, paint the containers, apply a stucco finish or use fiberboard siding. Complete the exterior finishing by adding a roof (if it fits the design) or keep it flat for a modern look.

Warning

Make sure building a house with shipping containers meets local building codes.

(资料来源：http://www.howtohomearticles.com/)

Words and Expressions

luxury	['lʌʃ(ə)ərɪ]	*n.*	奢侈，豪华
		adj.	奢侈的，豪华的
sturdy	['stɜːdɪ]	*adj.*	坚固的，强壮的，坚定的
tackle	['tæk(ə)l]	*vt.*	着手处理，解决，应付
kit	[kɪt]	*n.*	成套工具，成套配件
reseller	['riːselə]	*n.*	转销商，中间商
concrete	['kɒŋkriːt]	*n.*	混凝土
rebar	['riːbaː]	*n.*	钢筋
embed	[ɪm'bed]	*v.*	(把……)嵌入，埋入
crane	[kreɪn]	*n.*	起重机，吊车
seam	[siːm]	*n.*	接缝，接口
plasma	['plæzmə]	*n.*	等离子体
finish	['fɪnɪʃ]	*vt.*	装饰……表面
interior finish			内部装修
exterior finish			外面装修
local code			区域号码，地方法规
ceramic	[sɪ'ræmɪk]	*adj.*	陶瓷的，陶器的
		n.	陶瓷，陶瓷制品
subfloor	['sʌbflɔː]	*n.*	底层地板
decorate	['dekəreɪt]	*v.*	装饰，装潢，修饰
stucco	['stʌkəʊ]	*n.*	泥灰
fiberboard	['faɪbəbɔːd]	*n.*	纤维板

附录 A

译文和参考答案

Chapter 1

集装箱类型与设计 I

国际上使用的集装箱有超过 50%属于航运公司。此外还有大量的租箱公司向船东和货主出租集装箱。关于这些集装箱的具体细节通常可以在各个公司发布的手册里找到。当然，下文只能涉及几种常见的集装箱类型。

根据 ISO(国际标准化组织)的标准，集装箱可分成以下几类：

- 通用集装箱
- 干散货集装箱/散货集装箱
- 保温集装箱
- 敞侧箱
- 开/敞顶箱
- 框架箱
- 罐式箱

这些类型内又可以根据设计和主要特征做进一步的区分。集装箱用户应该了解不同类型的集装箱之间最重要的结构区别，才能为装箱和货物栓固做适当准备并正确评估集装箱的装载能力。

多年来，一些不符合规范或在规范之外使用的词汇已经被接受，其中有些需要澄清。标准集装箱这个术语用于最早的基本形式的集装箱。因为这种集装箱是封闭的，主要适用于装载普通货物，它们也称为通用集装箱、干货箱或者箱型集装箱。最初的 8 英尺高度基本已经成为历史。大多数箱型集装箱外部高度为 8 英尺 6 英寸。通用集装箱通常在一端开口，如图 1.1 所示。

40 英尺集装箱比 20 英尺集装箱箱容系数大，即它们适用于积载因素更高的货物，如图 1.2 所示。

高箱这个词最初涵盖所有高于 8 英尺 6 英寸的集装箱。现在实践中这个词几乎仅用于外部高度为 9 英尺 6 英寸的集装箱。高箱箱顶边缘黄黑相间的标志警示其高度。这种集装箱在公路或铁路运输时，需要特别注意可能的高度限制，可能需要使用特殊的底盘车或货运车，如图 1.3 所示。

干散货集装箱或散货集装箱可以用于运输松散、可以自由流动的货物。在外形上，除了

有装货口和卸货口，普通的散货箱与标准集装箱结构相同，如图 1.4 所示。

装货口或装货顶安装在箱顶。卸货口通常在一端，一般嵌在门里，有时候也包含短软管，以便能够在卸货时引导货物。较少也会出现卸货口安装在箱壁上的情况。无论上述哪种情况，都是靠重力卸货，常常通过倾斜集装箱来辅助卸货，如图 1.5 所示。

为了避免货物与箱壁接触，可以在箱内放入衬垫或衬袋，并固定到位。衬垫有可重复使用的衬垫，也有一次性使用的衬垫或衬里。安装衬垫或衬袋后，普通的通用集装箱也可以用作散货箱，如图 1.6 所示。

保温箱分为冷藏、冷藏/加热以及单纯隔热几种类型，也有按固定设备和可拆装设备作出的区分。冷藏/加热箱使货物可以在各种外界温度下进行运输。集装箱到底是加热还是冷藏与外界温度有关。尽管如此，冷藏箱这个术语已经约定俗成。正确的说法本该是温控箱，如图 1.7 所示。



Exercises

I. 用中文或英文回答问题

1. 答案：干货箱、散货箱、冷藏箱、敞侧箱、敞顶箱、框架箱、罐式箱。
2. 答案：标准集装箱、干货箱、箱型集装箱。
3. 答案：8'6"。
4. 答案：9'6"，箱顶边缘有黄黑相间的标志。
5. 答案：箱顶有装货口，门端有卸货口。
6. 答案：为了避免货物与箱壁接触。
7. 答案：靠重力从卸货口卸货，常常通过倾斜集装箱来辅助卸货。
8. 答案：冷藏箱。

II. 英译汉

1. 答案：航运公司
2. 答案：租箱公司
3. 答案：船东
4. 答案：装货口
5. 答案：卸货口
6. 答案：可重复使用衬垫
7. 答案：一次性使用衬袋
8. 答案：外界温度

III. 汉译英

1. 答案：dry cargo container/general purpose container/standard container/ box container
2. 答案：high-cube container
3. 答案：bulk container/dry bulk container



4．答案：refrigerated container/reefer/thermal container/ temperature-controlled container

5．答案：volume-to-payload ratio

6．答案：stowage factor

Reference Translation of the Extended Reading

集装箱的历史

2001 年 5 月，“集装箱之父”马尔科姆·珀赛尔·麦克莱恩(见图 1.8)去世，享年 87 岁。20 世纪 30 年代末，当他还是霍博肯港的小规模运输商的时候，他就说他有意避免在运输方式之间不断装载卸载的频繁切换，以此使货物运输更加合理。一开始麦克莱恩把整个卡车装到船上，这样就可以把卡车尽可能运到接近目的地的地方。此后发展出了由牵引车运输的标准化的箱子和拖车，这使仅仅装运拖车和箱子成为了可能，节约了空间和成本。后来，拖车也被弃置了，船仅仅运送集装箱。

船东们相当怀疑麦克莱恩的想法。这促使他自己当了船东，他给自己的公司起了个合适的名字叫“海陆股份有限公司”。20 世纪 90 年代末，麦克莱恩把公司卖给了马士基航运公司，不过他公司的原名依然存在于“马士基海陆”的公司名称中。

文献中常常提及的第一艘装载集装箱的货船是“理想十号”，这艘船是由油船改造的。 这艘船 1956 年 4 月 26 日从纽瓦克开出，装载着 58 个集装箱作为甲板货物运往休斯顿。第一次有集装箱船停泊在欧洲是在 10 年之后了。欧洲和日本的船东们很快认识到了集装箱的好处，因而也在这项新的运输技术上进行了投资。

由于美国标准很难适用于欧洲和其他国家，在与美国人进行了艰苦的谈判后大家最终达成了一个协议。由此协议而产生的 ISO 标准规定了集装箱 10 英尺、20 英尺、30 英尺和 40 英尺的长度。宽度规定为 8 英尺，高度为 8 英尺和 8 英尺 6 英寸。现在世界上使用的大多数集装箱符合 ISO 标准，最多的是 20 英尺和 40 英尺长集装箱。

这些年来，ISO 标准不断遭受压力。因为大多数货物的积载因素提高了，许多货运代理想要更长、更宽、更高的集装箱，最好是 3 个参数同时增长。有些船东向这种压力屈服了，尤其是在美国，现在会明显更频繁地见到尺寸超过 ISO 标准规定的集装箱；而在欧洲和其他大洲，狭窄的道路是一个制约因素；同时，可以理解，发展中国家是反对更改标准的。

Chapter 2

集装箱类型与设计 II

敞侧箱(OS)有固定的端壁和固定的顶板。拱梁支座和箱顶拱梁支承着可能有雨布覆盖的上方部分。敞侧箱从侧面装箱。也有仅一侧敞开的敞侧箱。如果在敞开一侧安装上栅栏，敞侧箱就可以用来运输牲畜。敞侧箱的另一种变形是“折叠侧壁”集装箱——一种内陆运输集装箱。木质、铝制型材或者钢板制成的侧壁可以分成几部分，可以折下侧壁在箱底处合起。也有后端开门的敞侧箱，如图 2.1 所示。

敞顶箱至少在后端有门，其箱顶是可以打开或者可以拆装的。箱顶覆盖可以由箱顶拱梁支撑的雨布构成，也可以由可完全移除的硬顶构成。后一种箱顶覆盖的集装箱称为硬顶敞顶箱。因为箱顶是可以打开的，敞顶箱也可以从上方装箱。总的来说，敞顶箱适合装运各种普通货物，尤其是超高的货物，如图 2.2 所示。

框架箱一般也称为敞开集装箱。框架箱由用钢板或板材加固的地板构成。大量的绑扎点用来栓固货物，它们可以是装在侧梁外的绑扎柄、绑扎环或绑扎杆。虽然这种集装箱可能有专门设备，譬如支柱、下折端壁，绑扎设备等，但是专业文献中常常把它们称为无附加设备的集装箱，如图 2.3 所示。

罐式箱用来运载液体和气体。所运载物质的特性决定了罐式箱的制造材料，运输压力影响罐式箱的结构。罐式箱几乎都有钢制框架作为基座，框架中可以安装各种形状的罐箱。根据注满和排空类型和方式的不同，罐式箱安装了各种附件和辅助设备。罐式箱可以从装货顶或者管子注满，而排空可以通过地板排水管向下进行，可以通过升流管和压力发生器向上进行，也可以用任何其他合适的方法进行。温控罐式箱需要专门的加热或冷却装置。

罐式箱的运载品可能是从无害到极其危险的任何种类的液体、液化或气化了的物质，如图 2.4 所示。

用来运液体食材的罐式箱必须清楚表明用于此用途。

仅用于可饮液体

运载危险液体的集装箱在服从其他规则同时，必须服从管理危险货物运输的规则，也可能要接受测试，以便判断其是否符合国家相关部门的规定，如图 2.5 所示。

为了安全原因，罐式箱必须至少装到 80%，以防止运输过程中液体不安全的浪涌。作为经验法则，罐式箱的装载量也不应超过 95%，以给内容物质的热胀预留空间。

可以在标准集装箱里放入可弯曲管道代替罐式箱，这样就把标准集装箱变成了临时的罐式箱。然而这样做的一个主要问题是液体的浪涌可能导致箱壁破坏。



Exercises

I. 用中文或英文回答问题

1. 答案：敞侧箱从侧面装箱。
2. 答案：在敞开一侧安装了栅栏的敞侧箱可以用来运输牲畜。
3. 答案：适合装运各种普通货物，尤其是超高的货物。
4. 答案：可以用一块由箱顶拱梁支撑的雨布或者一个可完全移除的硬顶覆盖。
5. 答案：支柱、下折端壁、绑扎设备等。
6. 答案：由所运载物质的特性决定。
7. 答案：可以从装货顶或者管子注满，而排空可以通过地板排水管向下进行，可以通过升流管和压力发生器向上进行，也可以用任何其他合适的方法进行。
8. 答案：液量应该介于 80%到 95%之间。充满至少 80%是为了防止运输过程中液体不安全的浪涌，不超过 95%是为了给内容物质的热胀预留空间。

II. 英译汉

1. 答案：端壁



2．答案：顶板
3．答案：箱顶拱梁
4．答案：拱梁支座
5．答案：侧梁
6．答案：专业文献

III. 汉译英

1．答案：open-sided container
2．答案：open-top container
3．答案：platform container/flatrack/open container/container without additional equipment
4．答案：cargo secure
5．答案：lashing equipment
6．答案：tank container

Reference Translation of the Extended Reading

集装箱化对航运业的影响

几乎没有人一开始就预见到了集装箱化对航运业影响的程度。20 世纪 50 年代，哈佛大学经济学家本杰明·切尼兹预计集装箱化将使纽约能以比其他地区低廉的价格向美国南部运送工业品，并从中获益，但他没有预期到集装箱化可以使从国外进口工业品更加便宜。大多数有关集装箱化的经济学研究只是断定航运公司将开始以集装箱运输取代老的运输方式，但他们没有预计到集装箱化进程本身将对生产商的选择产生直接影响并提高贸易总额。

20 世纪六七十年代班轮装载方式转变成了集装箱装载。这带来了巨大的变化。以前，船在岸边停几周，让码头工人们辛辛苦苦地吊装货物，每次装 2～5 吨。集装箱使货主能够在任何时间、任何地点将货物装进标准尺寸的钢制集装箱，通常使用廉价的码头外劳动力进行。货物的预装降低了成本——船只有在航行中才赚钱——也加速了船的周转时间。

既然船不用再在码头岸边停靠几周，就可以把它们造得更大了，这带来了更大的规模经济。因此，20 世纪 70 年代的欧洲贸易中 45,000 吨集装箱船取代了 10,000 吨船。下一代船更大了。麦朗依湾号(1978)可以装运 2,400 个 20 英尺标准箱。她的替代品，21 世纪的 P&O 渣华麦朗依号装运 4,100 个。

然而在船变大的同时，船员却在变少。20 世纪八九十年代，机械化程度的提高及劳动力和管理改革进一步减少了船的周转时间。到了 21 世纪，集装箱船通常是定期航行，并有保证的泊位，即使最大的船也可以做到当天到达当天出航。全球化的进程和传统航运集团的溃败导致很多航线彻底消失。这些都造成了地方性商船队的萎缩。那些过去靠航运业营生的人现在大多数在岸上谋职了，从事船代、货代、验船师及其他类似的工作。

Chapter 3

集装箱结构与尺寸

总述

各种类型的集装箱用于各种不同的要求，如干货箱(封闭式)、敞顶箱、高箱、敞侧箱、散货箱、框架箱、罐式箱、冷藏箱等。所有这些类型的集装箱的尺寸和结构特征已经标准化，以适应装卸及不同运输方式间快速换装的需要。运输单元(如集装箱)的标准化有助于顺利发货，而某些构件和尺寸的标准化使标准装卸设备和运输方式的运用成为了可能。

要成为验箱员就必须掌握有关集装箱构造和尺寸方面的基本知识。我们首先参照最常见的类型(即标准箱型集装箱，20 英尺、40 英尺钢制干货箱)来描述集装箱的基本构件和设计，这些集装箱的特征在很多其他类型的集装箱上同样也能找到。

集装箱结构特征

集装箱由一般是钢制或铝制的刚性框架及框架构件之间的箱板构成。集装箱构件的名称在世界不同地区可能并不相同。但下列命名习惯已被普遍采用：

- 门端或后端指开有箱门的一端。
- 前端指箱门对面平行的一端。
- 左侧与右侧分别指面对箱门从外部观察集装箱时见到的左右侧。

注：

1．底横梁、箱顶拱梁之类的横向构件为便于区分进行编号，是从门端开始的。

2．大多数损坏与修理代码中的板条也是从门端开始编号的。

所有箱型集装箱的主要承重结构体都是框架，框架由下列部分构成，如图 3.1 所示。

1．前端框由下列构件组成：一根横向的前楣(上端梁)，两根前角柱，一根前槛(下端梁)及 4 个角件。

2．后端框(门框)由下列构件组成：一根横向的后楣(门楣)，两根后角柱，一根后槛(门槛)及 4 个角件。

3．纵向顶侧梁和底侧梁将前端框与后端框连接成一体。

横向的底横梁安装在两根底侧梁之间，起支撑地板的作用。货物放在集装箱地板上，而地板由两根底侧梁、前槛和门槛以及许多底横梁支承，如图 3.2 所示。地板通常用胶合板、实心或层压的硬木或软木板、或木板与钢板交错而成的板材制成。其他比如竹子、塑料或合成材料之类的材料，也正在开发成为地板材料。有时在集装箱中央用一根中梁纵向支承胶合地板。

在端框构件中间是由端板拼装而成的端壁，而在顶侧梁与底侧梁之间是由侧板拼成的侧壁，如图 3.3 所示。波纹型侧板在靠近前后端处可能各有一块自上而下一通到底的平面区域称为标志板，用于粘贴箱主要求的标志。有些集装箱侧壁上在顶侧梁下方有通风器。通风器使箱内空气得以流通，同时又能防止箱外的固态或液态异物进入箱内，如图 3.4 所示。

在干货箱上部两根顶侧梁之间是用平面型或波纹型顶板拼接而成的箱顶，如图 3.5 所示。



如果顶板是平的，就用不同数量的箱顶拱梁从箱顶内部加固顶板。箱顶拱梁通常向箱顶中心拱起以便排水。靠近角件的箱顶角可用箱角护板(或箱角加强板)加固。另外也可以用从楣上部延伸覆盖于箱顶的楣部延伸板来提高强度。

端壁、侧壁和箱顶是标准箱型集装箱最不能承重的构件。当然，在一定程度上这也取决于采用的制造材料。

集装箱的后端是两扇箱门，箱门通常由外面的平面型或波纹型门板和里面的门框组成。每扇门用 3～5 个铰链固定到位，如图 3.6 所示。

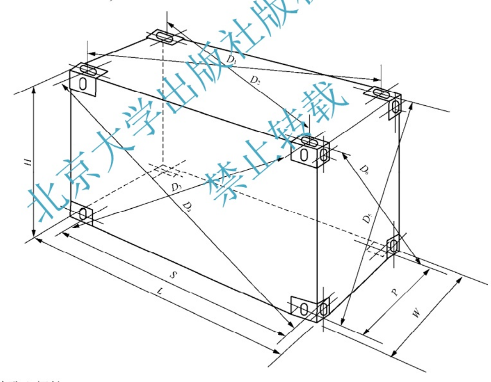
大多数 40 英尺箱及所有高箱的底部结构都有鹅颈槽，用来与底盘车的鹅颈结构相配，如图 3.7 所示。

集装箱结构图

图 3.8 详细地展示了集装箱的各个构件。

ISO 尺寸及公差

国际标准化组织规定了集装箱上要予以保证的某些最大和最小尺寸，并标有上下偏差值(即超出规定尺寸的允许值)，如图 3.9 及表 3.1 和表 3.2 所示。



$S=$ 角件孔心间长

$P=$ 角件孔心间宽

$L=$ 集装箱外长

$W=$ 集装箱外宽

$D=$ 对角角件孔心距

$K_1=D_1$ 与 D_2 的差值或 D_3 与 D_4 的差值

$K_2=D_5$ 与 D_6 的差值

$H=$ 总高

图 3.9　ISO 尺寸

表 3.1 公制和美制的外部尺寸及公差

高度：$8\frac{1}{2}$ 英尺高：2,591 $^{+0}_{-5}$ mm (8ft. 6in. $^{+0}_{-\frac{3}{16}}$ in.)

$9\frac{1}{2}$ 英尺高：2,896 $^{+0}_{-5}$ mm (9ft. 6in. $^{+0}_{-\frac{3}{16}}$ in.)

宽度：所有集装箱：2,438 $^{+0}_{-5}$ mm (8ft. 0in. $^{+0}_{-\frac{3}{16}}$ in.)

货运集装箱型号	(外部)长度		S		P		K_1 最大值		K_2 最大值	
	mm	ft in	mm	ft in	mm	ft in	mm	in	mm	in
20'	6,058 $^{+0}_{-6}$	19 $10\frac{1}{2}$ $^{+0}_{-\frac{1}{4}}$	5,853	19 $2\frac{7}{16}$	2,259	7 $4\frac{31}{32}$	13	$\frac{1}{2}$	10	$\frac{3}{8}$
40'	12,192 $^{+0}_{-10}$	40 0 $^{+0}_{-\frac{3}{8}}$	11,985	39 $3\frac{7}{8}$	2,259	7 $4\frac{31}{32}$	19	$\frac{3}{4}$	10	$\frac{3}{8}$

表 3.2 最小内部尺寸

货运集装箱型号	高度最小值	宽度最小值		长度最小值		
		mm	in	mm	ft	in
20'	集装箱外部公称高度减 241mm ($9\frac{1}{2}$ in)	2,330	$91\frac{3}{4}$	5,867	19	3
40'				11,998	39	$4\frac{3}{8}$



Exercises

I. 用中文或英文回答问题

1．答案：标准箱型集装箱，20 英尺及 40 英尺钢制干货箱。

2．答案：后端指开有箱门的一端，前端指箱门对面的一端。

3．答案：是面对箱门从外部观察集装箱时见到的左右侧。

4．答案：框架。

5．答案：加固靠近角件的箱顶角。

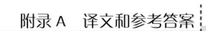
6．答案：为了排水。

7．答案：长度范围是 6052～6058mm，宽度范围是 2433～2438mm，高度范围是 2586～2591mm。

8．答案：2349mm。

II. 英译汉

part name	零部件名称	part name	零部件名称
front top rail/front header	上端梁/前楣	side panel/side wall	侧板/侧壁
front bottom rail/front sill	下端梁/前槛	marking panel	标志板
corner post	角柱	roof panel	顶板

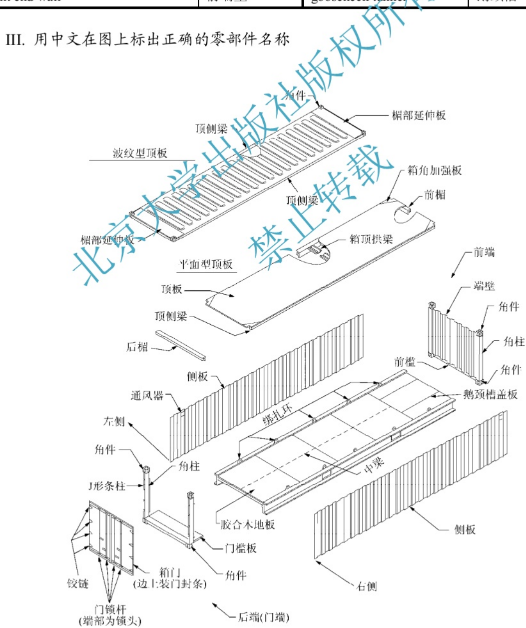


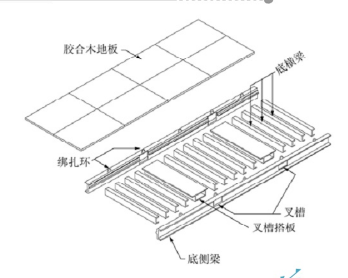


续表

part name	零部件名称	part name	零部件名称
corner fitting/corner casting	角件	roof bows	箱顶拱梁
rear header/door header/rear top rail	后楣/门楣	corner protection plate/ corner gusset	箱角护板/箱角加强板
rear sill/door sill/rear bottom rail	后槛/门槛	header extension plate	楣部延伸板
top side rail	顶侧梁	hinge	铰链
bottom side rail	底侧梁	door locking bar	门锁杆
bottom cross member	底横梁	cam	锁头
floor	地板	cam keeper	锁座
center spacer	中梁	door gasket	门封条
front end wall	前端壁	gooseneck tunnel	鹅颈槽

III. 用中文在图上标出正确的零部件名称





Reference Translation of the Extended Reading

集装箱的选择及配载

集装箱的承载能力也称为单线载荷。例如，普通的 20 英尺标准箱单线载荷 6 吨，而 40 英尺标准箱的单线载荷可能为 3 吨。也有单线载荷高得多的集装箱。框架箱地板区域明显加固，而且框架箱的侧梁可以直接使用，因此可以装重得多的负载。

早在下定单的时候就要确保集装箱适用于货物。确保集装箱满足装货重量的要求，拥有所需的承载能力和容量，这是十分重要的。

如果不遵守单线载荷的规定，集装箱就会受损。即使仅仅是超载也会出现损害集装箱结构件的问题。其危险在于这种破坏往往不为人觉察。例如，如果集装箱船甲板上底层的一个集装箱受了这种损害而破坏，那么其上的整垛集装箱都会垮塌。垮塌的集装箱垛不再稳固，因此可以不受制约地移动。船体每次运动，不稳固的集装箱垛都会像落锤一样推向相邻的集装箱垛。这些集装箱不久就经不起这种压力随之倒塌了。这可能导致集装箱船上出现可怕的货损现象，甚至可能危及船只的安全。

开始装货前还应该进行配载。合理配载是防止损坏的最佳保护措施。配载可以隔开不相容的货物，把货物装载紧实或者进行货物栓固，在配载中要考虑到所有货物的相容性和所涉及的所有包装的性质，即包装类型和强度。危险货物必须放在地板上，整个货物必须进行适当的栓固以对抗应力。轻的放在重的上，干的放在湿的上。重心应该位于集装箱的纵轴线上或者紧邻纵轴线。载荷的纵向分配必须使集装箱的两半都不承担超过 60%的货重。而且配载时应该考虑到气味或灰尘交叉污染的可能性以及货物的物理或化学相容性。

Chapter 4

运输中箱损的原因

在很多公司中，有责任感和质量意识的员工会计划、制定最佳的运输流程，以便待运货物以尽可能小的损坏运抵收货人。在这样的公司里，损坏预防是优先考虑的事项，因为经济



上的成功很大程度上有赖于顾客的满意，这已是一种常识。这些公司做出了诸多努力来避免航运损坏或者限制这种损坏的程度。

但也有员工不怎么注意损坏预防。他们的行为或疏忽几乎都不可避免地造成了损坏和事故。每年航运业都有很多疏忽造成的损坏案，这些损坏案迅速积累至巨大的金额，占航运业损失的绝大部分。

例如，大幅超过单线载荷，因此，集装箱受到了损坏，如图 4.1 所示。

哪怕是极小的空隙也必须避免，而此处的货物运输单元包装时两侧均有空隙，而此集装箱装载时里面也有空隙，如图 4.2 所示。

这个集装箱里的货物显然没有合格栓固。因此，集装箱从内部受到了损坏，如图 4.3 所示。

这里的问题不是出在船舶管理层或船员不合格，而出在部分集装箱的装箱人员。得到恰当装箱和栓固的集装箱没有发生任何问题，而装有不合格栓固货物的、装箱过程及方法有误的集装箱受到了损坏。甚至栓固并不理想的汽车(以 1、2 标出)也经受住了严峻的大海的考验，如图 4.4 所示。

实践中，有时早在所运产品设计和生产的过程中就犯了基本的错误。设计师不仅要考虑机器以后的功能，还要考虑到它首先必须不受损坏地运抵使用场所并安装到位。每台机器都应该有吊运点和绑扎点，才能方便地装卸和栓固，如图 4.5 所示。

如上所述，运输作业中计划和执行的错误大部分是由于人为失误。很多货物运输相关人员的知识技能不足是造成损坏的根源。更具体来说，装卸货物的人员不能理解所提供运输服务中复杂的交互关系，而且很多时候他们得到的培训很少，这些原因导致世界经济每年损失数十亿美元，其中大量损坏事件归咎于很多责任人员不了解或错误地估计了航运应力。

相反，充分了解货物在运输过程中承受的应力，就可以采取有效而经济的保护措施。因此，必须向装箱工人指明运输期间作用于货物上的各种应力，不管是公路、铁路还是海上运输。CTU(货物运输单元)装箱指南中所述的这项要求应该得到大力支持，因为观察日常实践就可以知道，相关人员在这个领域的无知令人吃惊。

航运应力

总体上航运应力分为以下两大类：

- 可避免的航运应力
- 不可避免的航运应力

可避免的航运应力归咎于人为缺陷。损坏事件的发生经常是由于货物不适当的装箱、配载、栓固，或是由于不正确地使用设备而出现损坏事件。

不可避免的航运应力由运输作业的性质决定，很大程度上在人为控制能力范围之外。

按来源分类，航运应力可以概括如图 4.6 所示。

经验表明且测量已证实，不同运输形式的航运应力大不相同。很难给仓储、装卸及运输应力赋以确切数值，因为它们由许多不同的参数决定。当然，除了上述概览中显示的应力，其他因素也对运输过程有影响，例如采用的运输形式、选择的路线、公路和铁路的路况或者海上运输中主要的天气状况。因此，不能对不同运输作业一概而论：每次运输都有所不同，都会受到随机出现的因素影响。所以，相关人员越是训练有素、经验丰富，就能越好地评估运输风险并采取有效的行动应对。培训和质量控制是在货物安全保障中起核心作用的两个关键概念。

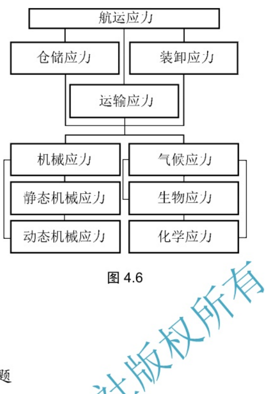


图 4.6

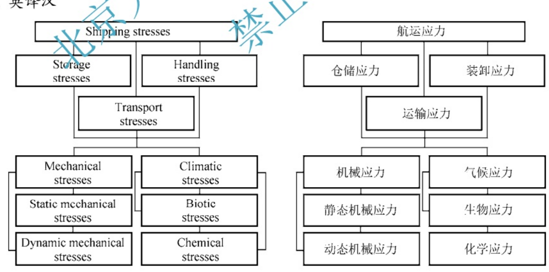


Exercises

I. 用中文或英文回答问题

1．答案：要注意所有机器都应该有吊运点和绑扎点，才能在运输中方便地装卸和栓固。
2．答案：正确估定航运应力可以采取有效且经济的保护措施，防止损坏。
3．答案：可避免的航运应力，不可避免的航运应力。
4．答案：是由于货物不适当的装箱、配载、栓固，或是由于不正确地使用设备造成的。

II. 英译汉



III. 汉译英

1．答案：slinging point
2．答案：pack
3．答案：stow
4．答案：cargo transport unit
5．答案：transport operation
6．答案：shipping stress



Reference Translation of the Extended Reading

符合需要的包装及货载固定

集装箱内运输的货物要受到各种应力。不同的运输方式产生其相应的应力，是货物必须要承受的。这些应力在本质上分为机械应力和气候应力。国际海事组织(IMO)认识到机械应力所造成的问题，几年前就拟定了得到国际承认的货物运输单元装箱指南。货物运输单元装箱指南清楚地指出了在使用各种运输方式进行运输的过程中可以预期的种种加速力。克服这些应力必须要有符合需要的包装及适当的货载固定。

首先，符合需要的包装是安全运输的逻辑前提。在商品成为货物前，必须有适当的包装。只有当包装符合需要的时候，商品才能视为货物。“符合需要”是什么意思呢？包装必须保护商品抵御可以预期的应力。

每种运输方式产生其特有的气候应力和机械应力。要设计正确的包装，就要了解货物运输的路线。了解路线就可以识别不同运输方式要经历的不同气候带和需承受的加速力，这些应力是必须应对的。除了这些外部因素，还需要考虑内部因素。例如，如果货物将要堆装在集装箱里，那么包装必须能够抵御相应的堆装压力。

货载固定的目的是保证货物维持在应该待的位置上，本身不受损坏，也不给其他货物造成损坏。货物运输单元装箱指南精确地标明了货物必须得到栓固以抵御的种种加速力。固定货载的最佳方法是货物自然地彼此紧密嵌合。如果不可能做到这一点，就必须栓固货载。货物不仅要牢固地堆装在集装箱里，而且必须在其包装内固定，以使其能够经受将要受到的应力。

总而言之，作为货物的商品需要专业的处理。只有良好的训练、确保质量的承诺才能带来安全、负责的运输。

Chapter 5

集装箱检验简介

损坏、磨蚀及不合格修理的定义

尽管集装箱是用耐用材料制成的，仍无法避免构件的损坏或老化。对集装箱进行检验是为了找出可能的不安全状况或可能降低集装箱使用性能或寿命的状况。集装箱上可能存在的缺陷有损坏、磨蚀和不合格修理三大类。

损坏是集装箱上由撞击、碰擦等一起或多起事件所引起的一个或若干物理缺陷。损坏常常是不恰当地装卸或使用集装箱所致。用户在使用集装箱时要给予应有的重视。总之，因未做到这一点所导致的缺陷，例如破损、裂缝、断开、撕裂、孔洞、弯曲、弓形、凹坑等，都被认为是“损坏”。其中某些缺陷会影响到集装箱的结构完整性、尺寸(箱内或箱外)、水密效果以及集装箱的认证要求。

磨蚀指集装箱在正常使用条件下(比如接触到海水及各种化学元素)，因其物理状态持续性老化所引起的一种或多种物理缺陷。(“正常使用”的含义为：在符合设计所要求的工作条件下，通过采用合格的方法装卸、栓固、地面堆装、船上配载及运输，正确地处理和使用设备。)换句话说，用户无法避免的、因持续性老化而造成的缺陷被认定为磨蚀。要注意假如渐进性缺陷是因某一破坏性事件或集装箱使用不当直接引起的，也被认为是损坏，例如，那些伴随损坏出现的腐蚀、油漆表面损坏或标贴破坏等，也同样被视为“损坏”。

不合格修理是因某次修理未按 IICL(国际集装箱出租商协会)推荐的方法进行而造成的缺陷。要确定以前的修理是否为不合格修理，验箱员应根据《钢制货运集装箱修理指南》及 ICS(国际航运公会)/IICL 的《集装箱清洗一般指南》最新版本做出判断。在集装箱行业，不合格修理常被称为“不恰当的修理”。

判断是否需要修理的标准

IICL 提出的标准列出了不必修理即可接受的损坏或磨蚀的极限值。凡是超过极限值的损坏或磨蚀都被称为需要修理的损坏或磨蚀，必须加以修理。处于标准规定的极限值范围内的损坏或磨蚀则不必进行修理，它们被称为不需要修理的损坏或磨蚀。

验箱员既要注意因损坏而需要修理的缺陷，也必须留心观察磨蚀所造成的需要修理的缺陷。磨蚀是集装箱暴露于设计环境条件下不可避免的结果，因此，早期发现并及时纠正磨蚀类缺陷能避免日后更加昂贵的修理。

除了损坏及磨蚀之外，还必须检查以前进行的修理。验箱员应熟悉 IICL 修理手册的最新版本。根据观察到的不同情况，即不合格的性质、其是否对安全构成威胁以及箱主的决定，一些不合格修理可能是不可接受的，必须重修进行校正，而另一些可能是可以接受的，不需校正。要确定某项不合格修理是否需要加以校正，应征求箱主的意见。然而，任何未能将集装箱的损坏或磨蚀恢复到可接受极限内的不合格修理均应加以纠正。

注意，对磨蚀和不合格修理的检验必不可少。

验箱员的作用

验箱员是对集装箱所处状态的最重要的评判员。对于运抵集装箱，验箱员的职责是要保证发现并标出所有需要修理的损坏，以便进行修理，他们还要确保标出的修理范围和方法适当，以修复那些损坏之处。验箱员应鉴别磨蚀和老化情况，以便进行及时修理，最大限度地延长集装箱的使用寿命。

验箱员也应对所有即将运离的集装箱进行检验，确保运出的集装箱均已完全地、无差错地修复，已不存在需要修理的损坏或磨蚀。还应对使用中的集装箱进行检验，以确保它们继续保持安全性及可用性。

验箱员发现非同寻常的损坏及磨蚀缺陷或任何不合格修理后，要向箱主报告，这是很重要的，其中也包括检验未经箱主授权进行的任何改动。对所有这些内容，验箱员应做出详细描述。



Exercises

I. 用中文或英文回答问题

1．答案：损坏、磨蚀和不合格修理。

2．答案：集装箱上由撞击、碰擦等一起或多起事件所引起的一个或若干物理缺陷。

3．答案：集装箱在正常使用条件下(比如接触到海水及各种化学元素)，因其物理状态持续性老化所引起的一种或多种物理缺陷。

4．答案：因某次修理未按 IICL 推荐的方法进行而造成的缺陷。

5．答案：凡是超过 IICL 标准规定的极限值的损坏或磨蚀都必须加以修理，而处于极限值范围内的损坏或磨蚀则不必进行修理。



6．答案：不合格修理根据观察到的不同情况，可分为需要校正的不可接受状态与不需要校正可以接受状态两种，应征求箱主的意见来确定某项不合格修理是否需要加以校正。然而，对任何未能将集装箱恢复到损坏或磨蚀可接受极限内的不合格修理均应加以纠正。

7．答案：保证发现并标出运抵集装箱中所有需要修理的损坏，以便进行修理，他们还要确保标出的修理范围和方法适当，以修复那些损坏之处。验箱员应鉴别磨蚀和老化情况 ，以便进行及时修理，最大限度地延长集装箱的使用寿命。

8．答案：确保运出的集装箱均已完全地、无差错地修复，已不存在需要修理的损坏或磨蚀。

II. 英译汉

1．答案：裂缝
2．答案：油漆表面损坏
3．答案：认证要求
4．答案：运抵的集装箱/运离的集装箱
5．答案：国际集装箱出租商协会
6．答案：国际航运公会

III. 汉译英

1．答案：damage
2．答案：bend
3．答案：bow
4．答案：dent
5．答案：wear
6．答案：non-conforming repair / improper repair

Reference Translation of the Extended Reading

检验的需要

远远观看集装箱码头的装卸作业会让人联想起堆积木。然而，这些彩色箱子的运动绝非儿戏，而是全球经济系统的脉搏。当商品进入集装箱，它们就变成了货物。集装箱运输货物，也就是经济运行所产生的资产。即使集装箱看起来像个大车库，但它其实是一个将要以某种交通方式运载的货物单元。

集装箱是整个货运体系中的一个模块化元素。货运集装箱的目的就是要安全、高效地运载货物。集装箱必须适应航海，且能在各种多变的气温、气候条件下经得住进行公路、铁路运输及货运站、码头装卸等恶劣条件的考验。使用中的集装箱不能存在任何影响到其本身安全或装货能力的缺陷，这一点相当重要。将集装箱各尺寸保持在所推荐的公差范围内，并确保其结构的完整，这对整个体系的运作能力非常重要。

尽管集装箱是用耐用材料制成的，还是会存在构件的损坏或老化问题。有必要检查集装箱内外是否有损坏，集装箱是否密封良好、无异味，功能有没有问题。门是否能开关？装货后集装箱关了门是否能防水？地板是否干净，有没有损坏，有没有凸出的螺钉或钉子可能损坏新装入的货物？载货栓固点有没有损坏？对集装箱进行检验就是为了找出应该纠正的状况，以便最大限度地延长集装箱的使用寿命。

总之，确保对集装箱进行适当的检验，并进行质量合格的恰当的修理，这对各方都有长期的益处。然而，简单的事往往没有得到足够的关注，因而导致了相当大的破坏和损失。

Chapter 6

判断损坏和磨蚀是否需要修理的标准

集装箱必须一直处于既安全又牢固的状态下。验箱的最困难之处也许是在发现一个缺陷后确定其是否可以接受。表 6.1～表 6.8 中包括了验箱时应予检查的种种具体缺陷的详情。表中的标准规定了损坏允许极限，超出此极限，就必须修理。假如缺陷导致某构件超出了表格中的任何一条相关极限，则该缺陷就应加以修理。任何威胁到集装箱结构完整性的缺陷也应进行修理。

表 6.1　梁类构件检验标准

构　　件	状　　况	所需措施
所有梁类构件，包括侧梁、前后楣和前后槛	构件出现孔洞、断裂、撕裂、裂纹及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	任何变形，如弯曲、弓变、凹损等	如超出 ISO 尺寸公差，见表 6.8
顶侧梁与底侧梁	离角件 250mm(10 英寸)范围内的弯曲或凹损	要仔细检查角件的焊缝或其他连接，如发现破损、断裂、撕裂、裂缝、孔洞或其他损坏的迹象，则需要修理
前楣	除楣部延伸板和箱角护板外的构件上有任何变形，如弯曲、弓变、凹损等	如深度超过 25mm(1 英寸)，则需要修理
门楣	除楣部延伸板和箱角护板外的构件上有任何变形，如弯曲、弓变、凹损等	如果深度超过 35mm($1\frac{3}{8}$ 英寸)，则需要修理
门楣与门槛	影响到箱门关闭、栓固或水密效果	修理

表 6.2　柱类构件检验标准

构　　件	状　　况	所需措施
所有角柱，包括 J 形条柱	孔洞、断裂、撕裂，构件及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	任何变形，如弯曲、弓变、凹损等	如果超出 ISO 尺寸公差，见表 6.8
	任何单独的变形，如弯曲、弓变、凹损等	无论其长度及位置如何，如果变形量超过 25mm(1 英寸)，则需修理
	单根角柱上有两个或两个以上凹损	无论其长度及位置如何，如果深度超过 15mm(9/16 英寸)，则需修理
后角柱	任何影响箱门的活动、栓固或水密效果的变形	修理
J 形条柱	任何变形，如弯曲、弓变、凹损等	箱门必须能被完全打开(270°)。如果影响到门的活动，则需修理

表 6.3 侧/前端板检验标准

构　　件	状　　况	所需措施
所有侧板或前端板	孔洞、断裂、撕裂和裂纹；构件及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	标志板的平面部位，或在波纹板内凹或外凸面上的任何变形，如弯曲、凹损等	如果深度超过 35mm($1\frac{3}{8}$英寸)，则需要修理
	任何沿箱板长度或高度方向的弓变	如箱内尺寸减少 50mm(2 英寸)以上，则需要修理

表 6.4 箱门检验标准

构　　件	状　　况	所需措施
箱门组件，包括附件	孔洞、断裂、撕裂、裂纹；构件及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	任何变形如弯曲、弓变、凹损等	如果影响到门的活动或栓固；如超过 ISO 尺寸公差，见表 6.8
	卡死，咬死或太紧	如果影响到门的活动或栓固，则需修理
	水密效果不良	修理
门板	任何变形，如弯曲、弓变、凹损等	如果深度超过 35mm($1\frac{3}{8}$英寸)，则需修理
	任何沿箱板长度或高度方向的弓变	如箱内尺寸在任何位置减小 50mm (2 英寸)以上，则需修理
门封条	松动或缺失	修理
	断裂、撕开、裂缝或烧焦	如果透光或漏水，则需修理

表 6.5 箱顶检验标准

构　　件	状　　况	所需措施
顶板、楣部延伸板、箱角护板及箱顶拱梁	孔洞、断裂、撕裂或裂纹；构件及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	任何变形如弯曲、弓变、凹损等	如超过 ISO 尺寸公差，见表 6.8
箱顶拱梁	任何变形如弯曲、弓变、凹损等	如任一方向的变形量超过 50mm(2 英寸)，则需修理
箱角护板及楣部延伸板	任何变形如弯曲、弓变、凹损等	如箱内尺寸减少 50mm(2 英寸)以上，则需修理
所有顶板	任何变形，如弯曲、凹损等	如波纹板任何位置(无论内凹还是外凸)处变形深度超过 35mm($1\frac{3}{8}$英寸)，则需修理
	任何沿顶板长度或宽度方向的弓变	如箱内尺寸减小 50mm(2 英寸)以上，则需修理

表 6.6　地板检验标准

构　　件	状　　况	所需措施
地板，包括门槛板以及中梁	孔洞	如果透光，则无论孔径多大都需要修理
	构件及/或焊缝破损；紧固件缺失、松动或突出(注：如果不透光，地板中梁上的焊缝即使有裂纹或破损，也不需要修理)	修理
门槛板	向上翘曲	如果变形量超过 5mm(3/16 英寸)，则需修理

表 6.7　底部结构检验标准

构　　件	状　　况	所需措施
底横梁及鹅颈槽构件	孔洞、撕裂、断裂、裂缝，构件及/或焊缝破损	修理
	零件或紧固件缺失或松动	修理
	任何变形，如弯曲、弓变、凹损等	如果超出 ISO 尺寸公差，见表 6.8
鹅颈槽组件	任何变形，如弯曲、弓变、凹损等	如果变形量超过 50mm(2 英寸)，则需修理

表 6.8　其他检验标准

构　　件	状　　况	所需措施
角件及其周围焊缝	裂缝、松动、破损、角件孔尺寸超过 ISO 尺寸公差	修理
端框构件(角柱、前端板、箱门、楣板、槛板、角件)	任何变形，如弯曲、弓变、凹损等(影响到其他 ISO 标准规定的尺寸)	如变形量超过 ISO 标准公差再加 5mm(3/16 英寸)，则需修理
除端框构件外的整个集装箱	任何变形，如弯曲、弓变、凹损等(影响到其他 ISO 标准规定的尺寸)	如变形量超过 ISO 标准公差再加 10mm(3/8 英寸)，则需修理
整个集装箱	任何影响到 ISO 标准对两角件孔对角线尺寸要求的变形，如弯曲、弓变、凹损等	如果变形量超过 ISO 标准公差，则需修理
箱内地板表面	钉头高出地板表面的钉子	修理
绑扎附件	零件及/或焊缝破损、零件或紧固件缺失或松动	修理
	弯曲	如伸入箱内空间达 50mm(2 英寸)以上，则须修理
标志牌	标志牌或紧固件松动、破损或缺失，数据模糊	修理
各种规则、国际标准或箱主要求的标志物	缺失、松脱或外观受损	修理



为便于确定对 ISO 尺寸有影响的损坏是否需要修理，IICL 规定了在超出 ISO 公差范围后一个额外的公差，即：端框构件[角柱、前端板、箱门(包括箱门附属构件)、端楣、端槛及角件]为 5mm(3/16 英寸)，其他各种构件均为 10mm(3/8 英寸)。但是两对角角件孔心距(包括图 3.9 所示的尺寸 D_1-D_6、K_1、K_2、P 及 S)则必须遵照 ISO 极限值；这些尺寸没有 IICL 额外公差。

表 6.9 列出了由 ISO 与 IICL 可接受极限两者确定的集装箱尺寸值。如果某尺寸测量结果大于 IICL 最大极限，或小于该尺寸的 IICL 最小极限，则必须进行修理。

表 6.9　集装箱尺寸的 IICL 极限值

构件	IICL+ISO 损坏极限值
顶侧梁、侧板	外侧方向：超出角件侧面所在平面最大允许值 10mm(3/8 英寸) 往上方向 (顶侧梁)：超出顶角件上表面所在平面最大允许值 4mm (5/32 英寸)
底侧梁	外侧方向：超出角件侧面所在平面最大允许值 10mm(3/8 英寸) 往下方向：不低于底角件下表面所在平面
前楣和门楣、前端板和门板	外侧方向：超出角件端面所在平面最大允许值 5mm(3/16 英寸) 往上方向(楣板)：超出顶角件上表面所在平面最大允许值 4mm (5/32 英寸)
前槛与门槛(20 英尺集装箱)、门槛(40 英尺集装箱)	外侧方向：超出角件端面所在平面最大允许值 5mm(3/16 英寸) 往下方向：不低于底角件下表面所在平面
前槛(40 英尺集装箱)	外侧方向：前槛表面必须位于角件端面所在平面向后至少 1mm(1/32 英寸) 往下方向：不低于底角件下表面所在平面
角柱	内侧方向：按 IICL 标准中的表 6.2[最大值 25mm (1 英寸)]；对于两个以上的凹损最大允许值 15mm(9/16 英寸) 外侧方向：超出角件侧面和端面所在平面的最大允许值 5mm(3/16 英寸)
顶板	向下方向：按 IICL 标准中表 6.5 (最大允许值 35mm) 向上方向：顶角件上表面所在平面向上最大允许值 4mm
鹅颈槽	长度 L：最小值 3,140mm 最大值：3,510mm 鹅颈槽开口宽度 X：最小值 1,019mm，最大值 1,042mm 鹅颈槽开口高度 B：最小值 107mm，最大值 130mm
箱门开口	宽度：最小值 2,281mm.($89\frac{13}{16}$ 英寸) 高度：8 英尺 6 英寸集装箱：最小值 2,256mm 9 英尺 6 英寸集装箱：最小值 2,560mm



Exercises

用中文或英文回答问题

1．答案：不需要。见表 6.1，35mm。

2．答案：需要。见表 6.2，25mm。

3．答案：不需要。见表 6.3，35mm。

4．答案：需要。见表 6.4。

5．答案：需要。见表 6.4。

6．答案：需要。见表 6.5，35mm。

7．答案：如果不透光不需要修理，如果透光则需要修理，见表 6.6。

8．答案：如果钉子头部高于地板表面需要修理，如果钉子头部与地板表面相平则不需要修理，见表 6.7。

9．答案：需要。见表 6.8。

10．答案：不需要。见表 6.9，10mm。

Reference Translation of the Extended Reading

气候应力

随着集装箱化的普及，一开始是工业品，随后是来源于植物的商品都采用集装箱进行运输了。不久就出现了湿度的相关问题。

空气总是含有一定量的水蒸气。关键在于空气只能含有定量的水蒸气。一旦达到了饱和含量，水就不能再蒸发。

饱合含量取决于温度。空气温度越高，可含的水蒸气量就越高。因此空气中的水分是以相对湿度来定义的。60%的相对湿度意味着空气的含水量是饱和含量的 60%。相对湿度越低，空气能吸收的水蒸气就越多。

很多物质是可吸潮的，诸如木头、纸、可可豆等，也就是说，它们可以吸收湿气，然后再释放出来。吸收湿气的过程称为吸水，释放水蒸气的过程称为脱水。这种物质中存在的水量称为含水量。含水量可量化为水相对于物质干重的百分比。

脱水的过程持续到物质与周围的空气达到湿度平衡。因此，含水量越高，可吸潮物质释放到外界空气中的水蒸气就越多。简单地说，集装箱内含水量高的物质产生高的相对湿度，而含水量低的物质相应产生低的相对湿度。

如果集装箱内的空气变暖，自然就相对变干，从而可以从可吸潮物质中吸收更多的水蒸气。如果原来吸收了水蒸气的空气冷却下来，问题就出现了，相对湿度升高了。

集装箱是一个密闭空间，有自己的小气候。如果集装箱不透气，潮气无法从外面渗入，其相对湿度就仅仅取决于货物的含水量和温度了。

船舶在航行中常常穿越若干不同的气候带。随着温度因气候不同而变化，集装箱内的微气候也在变化。南北方向的航行问题尤为突出，因为在这样的航行中，气温和水温变化很快。箱内气候甚至受到温度日变化的影响。“温度日变化”指的是由于一天内日光辐射水平不同而造成的，会对集装箱产生影响的温度变化。

由于温度这个变量取决于运输路线，无法人为改变，货物的含水量就成了为控制箱内气候可以调整的唯一因素。

Chapter 7

判断何时修理及修理范围的原则

确定何时需要修理及修理范围：基本原则

以下是在确定何时进行修理以及修理的范围时必须遵照的原则及一些说明怎样运用这些原则的实例。

1. 判断损坏是否需要修理的极限值，是根据集装箱的现状与原来的形状和强度相比较而规定的，而未必与接收到该箱时的状况相比较。

例：租箱时接受一集装箱，其侧板上有一深为 30mm($1\frac{3}{16}$ in)的凹损。在租用中止时检验集装箱发现凹损深度已扩大为 40mm。此凹损必须修理，因为虽然与接收该箱时相比，其凹损深度仅增加了 10mm(3/8 in)，但与其本来的形状相比较，损坏已达 40mm($1\frac{9}{16}$ in)，修理凹损时必须将其恢复到原来的形状，假如只是将凹损修理到原来深 30mm($1\frac{3}{16}$ in)的程度，则是不合格的修理。

2. 测量值正好为检验标准表格中列出的极限尺寸时，该损坏或磨蚀不用修理。只有那些超出或大于极限值的损坏才必须修理。

例：检验一个集装箱发现其侧板上有两个分开的凹损：一个深 35mm($1\frac{3}{8}$ in)，另一个深 38mm($1\frac{1}{2}$ in)。因为第一个凹损的测量值正好等于不需要修理的损坏的极限值，所以它不必修理。但第二个凹损却大于极限值，因此需要修理。

3. 如果某一损坏或磨蚀状况受两项以上标准制约，只要超出其中任一标准中的极限值，就必须进行修理。

例：一块侧板向外拱出 35mm($1\frac{3}{8}$ in)。即使弓变没有超出 IICL 对侧板弓变规定的极限值，也必须修理。这是因为弓变使得侧板超出了 ISO 极限尺寸，超出了 ISO＋10mm IICL 公差。

4. 如果损坏扩展到几个相邻构件(例如侧板上部和相邻的顶侧梁)，且其中至少一个构件的损坏需要修理，邻近所有不需要修理的损坏构件也必须修理，即使它们本身并没有损坏到超出标准极限值。

例：集装箱的顶部边缘受到撞击，在顶侧梁上形成一个 12mm(15/32 in)深的凹损。同时侧板上部邻近部位产生了深为 45mm($1\frac{3}{4}$ in)的内陷凹损。这两个构件相互靠近，如果不修理顶侧梁，会给侧板的修复带来危害。尽管深为 12mm(15/32 in)的侧梁凹损未超出梁类构件凹损的允许极限，还是必须对顶侧梁和侧板一起进行修理。

5. 如果需要修理，必须将损坏或磨蚀恢复到其原来的尺寸和形状，而不能只进行一些改善，使它们处于按标准表格规定不需要修理的状态内就算修理完毕。

例：修理中矫直了侧板上的一个 50mm(2 in)的凹损。矫直后侧板上仍有一个 5mm(3/16 in)的凹损。这是不合格修理，可能要按箱主的规定进行校正。

6. 有些损坏在初始阶段微不足道而不需要修理(例如一条小刮痕)，但最终可能因磨蚀(刮痕周围的钢材因锈蚀而受到破坏)导致形成需要修理的缺陷。因此，维护中最好要纠正这类不需要修理的损坏。

注意：如果在确定损坏是否要修理时，测量中公制与美制尺寸之间有矛盾，要优先采用公制尺寸。



Exercises

用中文或英文回答问题

1．答案：是与集装箱原来的形状和强度相比较。

2．答案：不需要，因为恰好等于检验标准极限值。

3．答案：需要。虽然外凸变形深度没有超过 35mm 的极限值，但变形使顶板超过了顶角件上表面所在平面向上最大允许值 4mm。

4．答案：只要其中一个构件需要修理，则所有相邻构件都必须修理。

5．答案：门槛和门槛板都需要修理。虽然门槛板的翘曲量没有超过最大允许值 5mm，但门槛变形影响到箱门水密效果，则相邻的门槛板也必须修理。

6．答案；不可以。必须将需要修理的损坏或磨蚀恢复到其原来的尺寸和形状，否则就成为不合格修理。

7．答案：因为这样的缺陷最终可能因磨蚀导致形成需要修理的缺陷。

8．答案：需要，因为虽然美制尺寸没有超过检验标准极限值 2 in，但是公制尺寸超过了箱内尺寸减少的最大允许值 50mm，要优先采用公制尺寸。

Reference Translation of the Extended Reading

湿度阈限

高质量运输过程有三个关键的湿度阈限。其中第一个是腐蚀阈限。该阈限设在相对湿度 40%。在相对湿度 40%到 60%之间，含铁金属略微易于腐蚀。湿度更高时，腐蚀的可能性显著增加。解决易腐蚀货物问题的方法是使用含有干燥剂的独立密封包装，把湿度始终保持在 40%以下。

下一个阈限是 75%的霉变阈限。当相对湿度达到或超过 75%时就可能长霉。这是对集装箱运输最为重要的湿度阈限。集装箱内可以调节湿度的因素是货物的含水量。因此，必须按运输过程中相对湿度不会超过 75%的标准选择货物的含水量。而且有必要考虑温度日变化和航行路线。根据路线和时节的不同，各种货物都有保证运输安全的特定含水量。经验法则认为，平均分布后达到平均 60%湿度的货物含水量可以视为安全。在运输对潮湿特别敏感的货物时，或者在预计可能发生极端气温波动的情况下，明智的办法是选择更低的含水量。

在运输或储存含水量高的货物或者来源于植物的货物时，必须满足严格的气候条件。例如，防止损坏的一种方法是使用地板和箱顶上有用于被动通风的穿孔板条的被动通风集装箱。如果无法把植物性货物干燥到安全含水量，就应该使用这种集装箱。由于采用了通风措施，可以调控储存空间内的空气，防止损坏。



一旦相对湿度达到 100%，就达到了第三个、也是最危险的阈限，即所谓的露点。如果空气继续冷却，水蒸气就会凝结。如果集装箱内超过了露点，水就从空气中凝结出来，集装箱里就下雨了，这会对货物造成严重的威胁。如果雨只持续了很短的时间，挂在箱内的无纺布可以非常有效地阻拦从箱顶上落下的水滴。如果雨下得更久，就肯定会造成货物的损坏。

Chapter 8

通用修理方法和规则

通用修理方法

适当的修理应使受损构件外观及周围区域尽可能地恢复原貌。下面的部分描述了可用于集装箱所有钢制构件的一些常见修理类型。

1. 矫直：用机械或液压使受损构件尽可能地恢复原来的形状，不去除该构件的任何部分(尽管某些情况下，可能需要把相邻构件从矫直构件上拆下)，如图 8.1 所示。

2. 焊接：用热量和另一片金属把两块分离的金属熔接起来。

3. 矫直并焊接：先矫直再焊接的综合方法。

4. 镶块：切掉部件小于断面的一部分，然后把符合其最初尺寸、形状和强度的替换材料焊接或固定于原位，把受损构件恢复到其原来的大小、形状和强度。替换件称为镶块，如图 8.2 所示。

5. 补丁：与镶块相同，只是替换材料比除去的材料略大，并且其边缘与母体材料重合。替换件称为补丁。注意：只有在板材上才可进行补丁，代替对这些构件进行镶块处理。

6. 部分替换：切掉部件整个断面大小的一部分，然后把符合其最初尺寸、形状和强度的替换材料焊接或固定于原位，把受损构件恢复到其原来的大小、形状和强度，如图 8.3 所示。(由于侧板、箱顶和门板的形状是扁平的，这些构件的镶块和部分替换一般是一样的。因此，在修理板材的情况下，术语“镶块”既可指镶块，也可指部分替换，如图 8.4 所示。)

7. 替换：把整个受损的构件除去，然后焊接或安装一个原来大小和强度的完整的新构件。(有些情况下，可以允许其形状不同。)

实施修理所涉及的通用规则

为了实现满意的修理，应遵循以下通用规则。

- 使用 IICL/ICS《集装箱设备检验指南》最新版本中的标准，判断损坏是否需要修理。
- 如果损坏需要修理，确定能满意地修复缺陷的最经济的修理方法。选择的修理方法应是可能范围内最经济的。只要可能，应对损坏的部件或部分构件进行矫直、焊接或矫直并焊接，而不是移除然后以镶块、部分替换件或整个替换件来代替。切勿在可达到满意效果的情况下进行更大范围或过度的修理，除非这样做比简单的修理操作起来更经济。
- 挑选适当的修理工具，安置修理工作必须的支架和其他固定装置。
- 把附近任何可能在修理过程中遭到破坏的未损坏构件暂时去除、移开或遮盖起来，特别是极易烧坏的木质地板。
- 开始修理。确保上油漆后完成的修理会有满意的表面外观。否则，要在上油漆前矫正这些缺陷。
- 如果现有金属的油漆表面受到了破坏，或者要安装新金属件，油漆前要先清洁并涂上底漆来预备金属构件表面。



- 确保完成所有修理后不暴露在外的新加金属构件在盖上以前都进行了清洁并涂上了底漆。
- 给暴露在外的表面涂表层漆(包括替换地板底面的底层漆)。必要时，待油漆干燥后按各种规定、ISO 标准和箱主的要求替换标志。
- 把所有暂时去除或移开的构件放回原处，除去所有遮盖或其他临时固定装置。

图 8.5～图 8.7 所示为修理的通用程序。

安全防范

IICL 希望所有修理人员在修理集装箱时采取适当的安全防范措施。应穿戴安全衣物，使用安全设备，包括安全帽、护目镜、手套、听力保护装置、面具及任何其他可能需要的装置。

集装箱修理中使用的某些密封剂、粘合剂、溶剂和润滑剂，如果没有以适当而负责的方式操作和处理，可能对环境和人员安全构成危险。修理人员应该熟悉这些产品并知悉其推荐使用和处理方法。

质量保证和管理

质量保证程序能帮助检修站管理部门确保稳定的令人满意的修理质量。这一程序可包括检查修理集装箱所用的材料，保证进行适当的准备、授权和修理作业，并确保在集装箱重新投入使用前正确完成修理程序。



Exercises

I. 用中文或英文回答问题

答案：选择能满意地修复缺陷的最经济的修理方法。

II. 英译汉并用中文解释名词

1．答案：矫直。用机械或液压使受损构件尽可能地恢复原来的形状，不去除该构件的任何部分。(尽管某些情况下，可能需要把相邻构件从矫直构件上拆下。)

2．答案：焊接。用热量和另一片金属把两块分离的金属熔接起来。

3．答案：焊接并矫直。先矫直再焊接的综合方法。

4．答案：镶块。切掉部件小于断面的一部分，然后把符合其最初尺寸、形状和强度的替换材料焊接或固定于原位，把受损构件恢复到其原来的大小、形状和强度。替换件称为镶块。

5．答案：补丁。与镶块相同，只是替换材料比除去的材料略大，并且其边缘与母体材料重合。替换件称为补丁。注意：只有在板材上才可进行补丁，替代对这些构件进行镶块处理。

6．答案：部分替换。切掉部件整个断面大小的一部分，然后把符合其最初尺寸、形状和强度的替换材料焊接或固定于原位，把受损构件恢复到其原来的大小、形状和强度。(由于侧板、箱顶和门板的形状是扁平的，这些构件的镶块和部分替换一般是同一回事。因此，在修理板材的情况下，术语“镶块”既可指镶块，也可指部分替换。)

7．答案：替换。把整个受损的构件除去，然后焊接或安装一个原来大小和强度的完整的新构件。(有些情况下，可以允许其形状不同。)

Reference Translation of the Extended Reading

遗失在大海中的28,000个橡胶鸭子能告诉我们什么有关海洋的知识？

1992年一个装着28,000个塑料洗浴玩具的集装箱在从香港到美国的路上掉下了船，遗失在大海中。当时没有人会猜到，20多年以后这些洗浴玩具还会在世界的各大洋上漂流。现在，这支塑料鸭子组成的小船队受到了欢迎，因为它们更新了我们对洋流的理解，并且在这个过程中使我们了解了一些有关塑料污染的问题。

在1992年某个不确定的日子，这些黄色的鸭子被遗失在大海中，从这天开始，它们起起伏伏、晃晃悠悠地周游了半个世界。有些已经被冲上了夏威夷、阿拉斯加、南美、澳大利亚和西北太平洋的海岸(见图8.8)；另一些被发现冻在了北极的冰盖里。还有些已经到了远至大西洋的苏格兰和纽芬兰。然而最著名的漂流者可能是还在北太平洋环流中继续环游的约两千个的小鸭子，这个环流在日本、阿拉斯加东南部、科迪亚克岛和阿留申群岛之间展开，小鸭子的环游状况辅助了这个环流的确认。

这些神奇的小鸭子有一批忠实的追随者，多年以来一直在追踪着它们的行程，他们给这些小鸭子起了个名字，叫“友好的漂流者”。退休海洋学家、漂流物爱好者柯蒂斯说：“我有一个网站，人们在这个网站上给我发送他们在世界各地的海滩上发现的鸭子的照片，我很快就能辨认出它们是否来自这批货。有个来自英国的鸭子我相信是真的。一位苏格兰的女法官给我发了一张它的照片。”柯蒂斯说：“我们一直知道洋流存在。但是，直到这些小鸭子出现，我们才知道完成一次环流要多久。现在我们确切地知道了环流所需的时间：约3年。”

如果这些友好的漂流者还能说明其他问题，就是塑料垃圾非常耐久，这是个世界性的问题。柯蒂斯补充道：“冲上阿拉斯加的那些小鸭子19年后依然保持着相当完好的外型。”

Chapter 9

检验程序及测量工具

确定的检验程序

由于集装箱构成了全世界多式联运的一个重要环节，确保高标准的检验对本行业来说是极其重要的。应该按照一个固定的工作惯例及完整的检验程序进行检验。检验集装箱并不存在一个“正确的顺序”，关键在于每个构件都应该检查到，看看是否有损坏、磨蚀和不合格的修理。每次检验的次序都相同，将有助于确保每个构件都被查到。

对集装箱损坏状况的检查还应该包括对其清洁程度的检验。如果验箱员认为某种污染、残留物、碎片、异味或菌虫侵害对人体健康及将来所装货物可能造成危害，他就必须立即找到空箱回收代理人寻求指导。例如，集装箱上残留的标签表明，问题可能与上一次装运的危险性货物有关。如果存在任何可能威胁到人员生命、健康或环境的状况，则可将该集装箱拒之门外。如果接收了这样的集装箱，必须将其隔离，直至情况明确，得到了适当的处理建议，并在必要时执行了处理程序为止。

在检验时必须遵守所有与劳动和工作条件有关的实用安全规则。

基本测量工具

根据检验程序，在确定损坏是否需要修理时，验箱员必须依据测量所得的结果下结论，而不能根据主观判断。检验中发现的任何损坏都必须进行测量并与检验标准作比较来确定是否需要修理。许多测量都有具体的尺寸，例如，凹损或其他的变形的具体深度、宽度或长度。这样的测量需要一些最起码的工具。每个验箱员都应配备合适的工具，用于定位、测量和对缺陷做出判定。验箱员在验箱前应做适当的准备。进行常规集装箱检验需要下列基本测量工具或设备，验箱员在检验集装箱时应该随时携带这些工具。

1. 长度至少 2.9 米(9.5 英尺)的可伸缩的基准线，端部带有磁铁，如图 9.1 所示。

2. 测损规。通常是长度至少 150mm(6 英寸)的量尺，最好附带 5mm(3/16 英寸)和 15mm(9/16 英寸)测洞规，如图 9.2 所示。

3. 各种高度或厚度的磁性垫片(有些垫片带有高度不一的外伸凸口销，基准线可与之连接)。

4. 锥形量规(三角形扁钢条，从尖端起宽度逐渐增加)，如图 9.3 所示。

5. 标准卷尺，长约 3.5 米(12.5 英尺)。

6. 测试锤(带有圆尖的锥头)，如图 9.4 所示。

7. 防水铝制写字板，如图 9.5 所示。

集装箱检验推荐的额外工具

除了损坏检验和常规检验所需的基本工具外，验箱员应该有一些其他工具，满足不太常规的测量需求。虽然验箱员不必像上面所列的工具那样随时携带这些额外的工具，但是在进行检验的库房中应该能够马上获得这些工具。这些工具如图 9.6 所示。

1. 15.3 米(50 英尺)长的可伸缩粉笔线或细绳。

2. 15.3 米(50 英尺)长的卷尺。

3. 小型自动聚焦照相机。

4. 粉笔及/或磁性夹子和笔记本。

5. 多用途可折叠工具，例如“莱泽曼”工具或者瑞士军刀。

6. IICL 检验手册。



Exercises

I. 用中文或英文回答问题

1. 答案：有助于确保每个构件都被查到。

2. 答案：可将该集装箱拒之门外，但如果已经接收了这样的集装箱，必须先将其隔离，立即与空箱回收代理人联系，直到弄清情况、得到了适当的处理建议，并在必要的的情况下执行了处理程序为止。

3. 答案：基准线、测损规、磁性垫片、锥形量规、标准卷尺、测蚀锤、防水铝制写字板。

4. 答案：IICL 检验手册。



II. 英译汉

1．答案：测洞规
2．答案：测试锤
3．答案：防水铝制写字板
4．答案：磁性夹子
5．答案：多用途可折叠工具
6．答案：瑞士军刀

III．汉译英

1．答案：reference line
2．答案：damage scale
3．答案：spacer
4．答案：taper gauge
5．答案：tape measure
6．答案：autofocus camera

Reference Translation of the Extended Reading

集装箱建筑工程

每年大约有 2,500 万集装箱穿行在美国的港口，运送儿童玩具、平板电视、电脑、汽车零件、运动鞋、毛衣等。这些色彩缤纷的 20 英尺箱或者 40 英尺箱坚固、耐用、可移动，可以像乐高积木一样轻松地堆积起来或连在一起。然而，集装箱所承担的繁重劳役还是会造成损坏，最终，这些集装箱会用坏报废。大量不用的货运集装箱闲置在美国的港口和航运堆场。包括网上出售的，废旧集装箱估计有将近 12,000 个。因此，现在迫切需要将集装箱转用至一些特殊用途。

此时，建筑家和设计师，尤其是那些有“绿色”倾向的人士，开始以其他方式利用空置集装箱。集装箱建筑工程是用集装箱作为人类住房或其他功能建筑的基本材料，可以作临时或者永久性的住房，可以作主体建筑也可以作舱房或车间。建筑家和设计师们把这些被人抛弃的箱子变成了学生宿舍、艺术工作室、紧急情况临时收容所、健康诊所、办公楼等。集装箱还用来提供设备围护、展架、安全棚等很多用途。它们也可在工商业中用作棚屋或储藏区。

因为托运人认为把空置集装箱空载运回其来源港成本太高，空置集装箱在全世界的港口城市里渐渐堆积，集装箱建筑工程项目的支持者认为这正是一种再利用空置集装箱的好办法。欧洲已经广泛使用空置集装箱，不仅用来制造住房，而且用在给创业者做办公空间之类的项目上。在美国，其应用也不再罕见了。

因此，为了实现各种各样的应用已经出现了许多集装箱专用附件，例如：为专门建造安全办公室、餐厅和干燥室所需的管线、供暖和照明；档案室所需的钢架；家具储藏室所需的冷凝控制系统；以及用于储藏重物的坡道。

Chapter 10

弯曲、凹损和弓变的常用测量方法

损坏测量基础

因为检验中发现的任何损坏都必须进行测量，并与检验标准作比较来确定是否需要修理，所以测量准确一致是保持集装箱安全可用的关键。然而，实践经验表明，用不同的测量方法得到的集装箱损坏的测量值会有所不同。并且某些情况可能造成难以测量某些类型的损坏，进而难以确定是否需要修理。因此，我们感到精确描述如何测定损坏并为测量方法设立共同基础，有助于做出准确的判断。

尺寸检验标准分为两大类：一类是弯曲、凹损和弓变的检验标准，另一类是影响 ISO 尺寸外加 ISO+IICL 公差(或称集装箱极限尺寸)的检验标准。目前，第一类检验标准——弯曲、凹损和弓变检验标准——是 IICL/ICS 损坏标准中最常用的一类。所给的可接受损坏限度是最大深度值，超出此值，就必须进行修理。“损坏深度”指与原先未损坏的轮廓相比在任何方向的变形量。损坏深度从损坏区域内最大变形点量到部件上原来未损坏点来进行测量。

弯曲、凹损和弓变(凹面)的测量

弯曲、凹损和弓变的测量方法通常是在损坏部件损坏两侧的未损坏部分之间设一条基准线。以基准线作为该损坏区域原先未损坏时的轮廓。通常，量出从基准线到损坏区域内变形最大处的距离，就是将要与特定 IICL/ICS 标准进行比较的损坏深度，如图 10.1 和图 10.2 所示。

陡变的弯曲和凹损常常伴有渐变(例如弓变)，损坏测量必须测出陡变和渐变引起的总的变形。为了确保测量包括了陡变及任何可能的渐变，标准做法是把基准线跨过损坏部件的整个长度或高度，如图 10.3 所示。例如，侧板损坏时，基准线应该从顶梁和侧板的焊接点下方跨到底梁和侧板的焊接点上方，如图 10.4 所示。

这种标准做法也有不可行的时候。有时候，部件别处也有损坏，结果不能在两端设置基准线，或者部件太长，基准线无法跨越其整个长度。

在这种情况下，如果纯粹是局部损坏，基准线可以不跨越部件的整个长度。然而，基准线不能仅仅跨越弯曲或凹损的紧邻区域，而把有相伴渐变的更大外围区域排除在外。基准线局限在损坏区域，就不能确立损坏部件的原先轮廓，这样就会导致测量损坏的基准平面不准确，如图 10.5 所示。如上所述，基准线必须设在损坏部位两侧未损坏的两部分之间，以便为损坏测量提供准确的基准平面。

但是，如果部件全长都有弓变，例如顶侧梁整条弓变，基准线必须跨越部件的全长。如果角件直线度未损坏，通常可以以其表面作为基准线的固定点，如图 10.6 所示。

在任何情况下，基准线必须设于损坏最严重处的正上方，确保测出损坏全深，如图 10.7 和图 10.8 所示。



Exercises

I. 用中文或英文回答问题

1. 答案：①弯曲、凹损和弓变的检验标准；②影响 ISO 尺寸外加 ISO+IICL 公差(或称集装箱极限尺寸)的检验标准。



2．答案：在损坏部件两侧的未损坏部分之间设一条基准线。以基准线作为该损坏区域原先未损坏的轮廓。量出从基准线到损坏区域内变形最大处的距离，就是损坏深度。

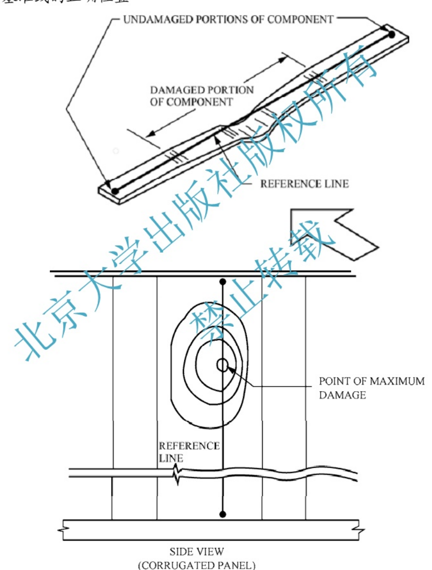
3．答案：①基准线必须跨过损坏部件的整个长度或高度或设在损坏两侧未损坏的两部分之间；②基准线必须设于损坏最严重处的正上方。

4．答案：因为陡变的弯曲和凹损常常伴有渐变(例如弓变)，损坏测量必须测出陡变和渐变引起的总的变形。

5．答案：如果角件直线度未损坏，通常可以以其表面作为基准线的固定点。

6．答案：为了确保测出损坏全深。

II. 画出基准线的正确位置



Reference Translation of the Extended Reading

即将再利用作公寓楼的集装箱

底特律的一家公司“平方三”计划把空置集装箱改造为市中心附近一座有 20 个单元的综合公寓楼。

这座四层楼高、有 20 个单元的综合公寓楼由 93 个货运集装箱堆装而成，是美国第一座由废弃集装箱改建的多住户居民楼，这座楼的建造已经计划数年了。这个集装箱公寓项目最早在 2008 年提出，名为罗莎公园的“特绿人生”，在美国房地产业遭受重创、房地产市场低迷期间，该项目一度停顿，然而现在项目已经重新上马准备施工，并已预期在底特律市中心破土动工。

公寓楼各单元面积从 850 平方英尺到 1,920 平方英尺不等。这个耗资 340 万的项目将堆叠 4 层集装箱，切割出门窗，安装马桶和楼梯，添加阳台、景观平台之类的便利设施，如图 10.9 所示。各单元将配有无管道供热和换气系统、无水箱式热水器以及其他节能系统。“平方三”公司 CEO 莱斯利·霍恩说：“我们在这些能效装置上花钱，房客就减少了能源费，而且我们能够花不到一半的时间建造这栋楼(与建造普通公寓楼相比)。”

霍恩承认很多人认为这个概念很奇怪：“上周我还见了几个投资商，其中有一个说：‘我还是愿意在你们建好一栋楼以后再投资。’我认为因为人们不了解集装箱建筑的多功能性，所以还是怀有偏见。”

可是霍恩相信，购房者很快就会发现什么是城里最与众不同的公寓项目，韦恩州立大学附近这座由空置集装箱建成的 20 单元的综合楼将使潜在的购房者明白集装箱建筑多么令人耳目一新。

霍恩说，如果成功的话，底特律的这个样板项目可以促使空置集装箱广泛用于其他用途，包括学生宿舍或紧急住房、临时建筑指挥部以及用来填充市郊空地的楼宇。霍恩已经在规划其他城市的相似项目。她补充道：“我们相信，这仅仅是我们公司施展才能的开始。”

Chapter 11

弯曲、凹损和弓起的“间隔/扣减”测量法

上次描述的测量方法有两种情况不能用：一种，损坏相对于基准线凸出(即损坏向外伸过基准线)；另一种，损坏发生在非直线表面上。此外，有时因为邻近部件会伸入基准线，也无法在损坏部位的正上方设置基准线。

测量凸变

如果无法按前述从背面测量凸变(在凹面设基准线)，则应该使用“间隔/扣减”测量法。基准线设在离部件一定距离的地方，以便避开所有的障碍。使用一定厚度(高度)的垫片把基准线抬离损坏部件。垫片置于部件的两侧，基准线跨越两垫片的顶面。在基准线和损坏变形最大处之间进行测量。基准线抬离部件的距离扣减这个测量值，可得出实际损坏深度。这种方法称为“间隔/扣减”测量法。

例如，底横梁双向弯曲。腹板两侧无法直接安放线绳，因为相邻损坏使线绳无法跨过底横梁的全长。因此，把基准线抬离底横梁腹板(在实际测量中，基准线固定于底侧梁腹板，与底横梁腹板间隔一定的距离)，通过测量和计算确定损坏值，如图 11.1 所示。

在如上图所示的通过计算进行损坏测量的情况中，大写“S”字母表示垫片厚度，“M”表示测量出的尺寸；“D”表示计算出的损坏尺寸。

测量非直线表面(顶板)损坏

通常方法无法测量损坏的第二种情况是非直线表面(例如顶板)损坏的测量。因为基准线是直线，不可能沿着顶板原先的曲面行走，由此可知无法精确确定受损表面原先未损坏时的位



置。为了给这种损坏的测定提供一个共同依据，确保得到前后一致的现场测量结果，IICL 指南建议在这种情况下忽略顶板的曲度。基准线应该跨过损坏部件的全长，像通常的情况一样在基准线与损坏最严重处之间进行测量。基准线应该设在损坏的凹面。如果不可行，基准线也可设在损坏的凸面，采用“间隔/扣减”测量法。

例如，如果顶板内表面波纹板间平面区域有一处向上弯曲，由于基准线不能沿箱顶拱形(曲面)行走，水平设一条基准线横跨顶板宽度进行测量，忽略箱顶拱形，如图 11.2 所示。



Exercises

I. 用中文或英文回答问题

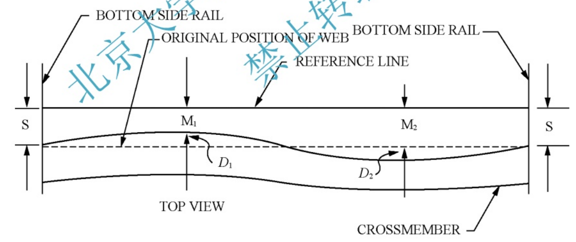
1．答案：①损坏相对于基准线凸出(即损坏向外伸过基准线)；②损坏发生在非直线表面上。

2．答案：①可以从背面测量(按通常方法在凹面设基准线)；②“间隔/扣减”法。

3．答案：使用一定厚度(高度)的垫片把基准线抬离损坏部件，垫片置于部件的两侧，基准线跨越两垫片顶面。在基准线和损坏变形最大处之间进行测量，基准线抬离部件的距离扣减这个测量值，得出实际损坏深度。

4．答案：可以忽略曲度，在损坏的凹面按通常方法测量，或者在损坏的凸面用“间隔/扣减”法测量。

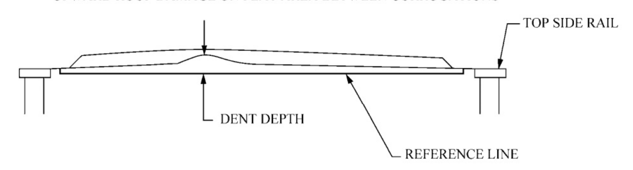
II. 画出基准线的设置位置，测量的位置，并写出损坏深度的计算公式。



D_1=S−M_1

D_2=M_2−S

UPWARD ROOF DAMAGE ON FLAT AREA BETWEEN CORRUGATIONS



Reference Translation of the Extended Reading

用集装箱开店

随着设计师们找到各种办法重新利用那些曾经在货轮上往美国运输进口物资的空置大集装箱，设在翻新集装箱里的零售空间逐渐普及起来。这种砖瓦砂浆的替代品吸引了那些还承担不起传统零售空间的高价格的小商家。

卡洛斯 2008 年开始卖太阳镜的时候，他知道自己承担不起在纽约开店所需的高额租金和承诺租用数年的合同。于是，他在街道集市和节日的时候销售他的商品，每年来回约 40 次。然而，他希望有一个固定的零售空间，去年他终于找到了一个办法使梦想成真了：在翻新的大钢制集装箱里开店。卡洛斯现在每个月付 1,400 美元，包含公用设施，在迪卡尔布市场里拥有了一个 160 平方英尺的空间，这个市场是 60 家栖居于集装箱中的零售商构成的联合体。这个租金他承担得起，而且一年的租期意味着不必作长期承诺。

而承担得起还不是唯一的好处。聚在一起的集装箱商店比孤立的一家商店更能吸引顾客的注意。2011 年 7 月迪卡尔布市场一开张就引发了消费者的兴趣，因为人们似乎觉得这种空间很有意思，如图 11.3 所示。今年卡洛斯在附近的集装箱里开了一家叫“迪卡尔布之翼”的鸡翅店。低风险的租金似乎是尝试商业创意的好机会。他说：“我想我不妨努力争取，现在是个好机会看看我们能不能提供什么市场需要的东西。”

此外，可移动性是集装箱商店最有吸引力的特色之一。有些小商人是买下而非租用集装箱。建筑流程需要复杂的许可审批，而作为集装箱主，创业者可以把商店随心所欲地运到任何地方。

艾琳已经在传统零售空间里经营了 3 家咖啡吧，但她还是爱上了这个创意：拥有一个一旦想有所改变就可以放到卡车上搬到新店址的咖啡吧。2011 年，她在几家设在集装箱里的零售店旁边开起了第 4 家咖啡吧，这些零售店都开在旧金山的一片空地上。她说：“我可以把我的店搬到别的地方，然后接通水电就行了。”

Chapter 12

损坏测量中检查极限尺寸的方法

在上述讨论的情况中，必须测出损坏深度并与该部件的许可极限值作比较，确定是否需要修理。然而，有些 IICL/ICS 标准不以个别弯曲、凹损或弓变的允许极限值为基础，而是要求损坏不超出 ISO 规定的某些极限外加 IICL/ICS 许可的额外公差(“IICL 公差”)。

以界限表面为基准点使用“间隔”法

此时不是测量凹损确定深度是否超出极限，而是检查损坏看它是否超出 ISO 最大尺寸加 ISO+IICL 公差规定的平面。这些标准通常称为“超 ISO”，也采用基准线进行测量。在这种情况下，基准线是用来确立界限表面(例如角件表面)，检查损坏是查看它是否达到了该极限。

例如，撞击使角柱材料外凸，有可能超出 ISO+5mm(3/16 英寸)的 IICL 端框尺寸标准，也就是说端框的任何损坏都不能超出由角件垂直面确定的垂直平面 5mm(3/16 英寸)以上。在这



种情况下，基准线设在离角件平面 5mm(3/16 英寸)处，检查损坏看它是否达到了基准线。如果达到了，则必须修理。图 12.1 显示这种方法。

如果验箱员没有正好 5 mm(3/16 英寸)厚的垫片，他可以用任意两个超过 5 mm (3/16 英寸)的等厚垫片，采用“间隔/扣减”法的变形来判断。图 12.2 所示为这种方法。

无法同时在界限表面和损坏上方设定基准线时的极限尺寸检查

在有些情况下，无法同时在界限表面(例如角件)和损坏的正上方设置基准线。例如，板材凸出时，无法通过角件在损坏上方设置基准线，就常常发生这种情况。结果是不能直接检查损坏是否达到基准线、是否“超 ISO”(即超出极限尺寸或者说超出 ISO 尺寸和公差外加 IICL 标准许可的额外公差)。

在基准线无法设在可以直接测量的位置时，为了提供一个标准的方法检查极限尺寸，IICL 提出了一种间接测量法。基准线设在可以测量变形的位置。用典型材料轮廓的假定来确定这条线和尺寸极限间的最大许可距离。这个距离称为“参考尺寸”。测出基准线和损坏最严重处之间的距离，再与参考尺寸作比较。如果测量值大于参考尺寸，凹损或其他损坏就超出了许可极限，“超 ISO”，必须修理。

以侧板波纹板外凸面上的一处向外凸出为例，验箱员怀疑这处从波纹板外凸面向外的凸出可能超出了 IICL 标准(ISO 公差加 10mm 或 3/8 英寸)，换句话说，就是可能突出了由角件垂直侧面确定的平面 10mm(3/8 英寸)以上。验箱员无法在离角件 10mm(3/8 英寸)处设置基准线同时又使其跨越损坏的正上方，因为损坏不在两角件平面间的直线上，如图 12.3 所示。

IICL 指南推荐的方法是将基准线垂直设在波纹板外凸面的内表面，从尽可能靠近顶梁与板材的焊接点开始，一直到底梁与板材的焊接点。用标准的方法从基准线到损坏最严重处进行弯曲、凹损或弓变深度的测量。假定未损坏的波纹板外凸面内表面位于角件外垂直面内 8mm(3/8 英寸)处。图中显示此时的参考尺寸是 18mm(11/16 英寸)。所以，如果测量值大于 18mm(11/16 英寸)，外凸就超出了 ISO+10mm(3/8 英寸)标准，必须进行修理，如图 12.4 所示。



Exercises

I. 用中文或英文回答问题

1．答案：①当基准线可以同时设在界限表面和损坏的正上方；②当基准线不能同时设在界限表面和损坏的正上方。

2．答案：用基准线确立界限表面，检查损坏是查看它是否达到了该极限。

3．答案：可以用任意两个超过公差值厚度的等厚垫片，采用“间隔/扣减”法的变形进行判断。

4．答案：用测量损坏的通常方法，将基准线设在可以测量变形的位置，测出基准线和损坏最严重处间的距离，然后用典型材料轮廓的假定来确定这条线和尺寸极限间的最大许可距离，称为参考尺寸，再与测量值作比较，如果测量值大于参考尺寸，则损坏就超出了许可极限，“超 ISO”，必须修理。

II. 思考并总结

参考答案：集装箱尺寸检验标准有两类：①弯曲、凹损和弓变的检验标准；②影响 ISO 尺寸 ISO+IICL 公差的检验标准。

一、测量弯曲、凹损和弓变

1. 在损坏部件损坏两侧的未损坏部分之间设一条基准线。以基准线作为该损坏区域原先未损坏之前的轮廓。量出从基准线到损坏区域内变形最大处的距离，就是损坏深度。

2. 当损坏相对于基准线凸出(即损坏向上伸过基准线)时，可以从背面测量(按通常方法在凹面设基准线)，也可以用间隔/扣减法测量。

3. 当损坏发生在非直线表面上时，可以忽略曲度，在损坏的凹面按通常方法测量，或者在损坏的凸面用间隔/扣减法测量。

二、检查集装箱外部尺寸是否超出 ISO＋IICL 公差

1. 当基准线可以同时设在界限表面和损坏的正上方时，用基准线确立界限表面，检查损坏是查看它是否达到了该极限。

2. 当基准线不能同时设在界限表面和损坏的正上方时，用测量损坏的通常方法，将基准线设在可以测量变形的位置，测出基准线和损坏最严重处间的距离，然后用典型材料轮廓的假定来确定这条线和尺寸极限之间的最大许可距离，称为参考尺寸，再与测量值作比较，如果测量值大于参考尺寸，则损坏就超出了许可极限，"超 ISO"，必须修理。

Reference Translation of the Extended Reading

新一代工业革命从20英尺集装箱开始

Re-Char 是肯尼亚西部一家专业制窑的新创小公司。为了造窑，他们需要进行金属精切割。他们主要有两种选择：一种是用当地劳工——找个人手持氧乙炔焊炬在公路边干活；另一种是用来自中国的批量产品，每次进货一个集装箱。但是目前这两种选择要么不专业，要么浪费、昂贵，也不如在客户附近进行加工效率高。为了在一个工业和基础设施很少的地方完成任务，Re-Char 设计出一种新事物——一个 20 英尺集装箱里的功能完备的工厂。两名员工就可以经营这个工厂，如图 12.5 所示。结果证明，即使只从经济效益上看，这也是从事生产的正确方法。

除了效益高，Re-Char 无论从生产和运输的角度来看都是极其"绿色"的。事实上，Re-Char 是把工厂——集装箱内的完全整合的加工中心——搬到了有需求的地方。通过缩短运输距离，Re-Char 大幅降低了运输成本。

而且，一旦建起了工厂，它就成了创新的中心。即使在生产过程中，Re-Char 也可以不断改进窑的设计。这个工厂可以使新产品满足当地居民的需要，而且能够极为迅速地做到这一点。

Re-Char 运转得很好，事实上，Re-Char 运转得如此良好，以至于它现在已经做好准备可以把这种自给自足的箱内工厂运到世界各地。他们团队的终极目标是成为箱内工厂的全球化网络。

这可能标志着制造业的巨大变革。很容易想像，一个独立的设计爱好者会想出下一个了不起的创意，而如果没有集装箱工厂，他/她可能永远没有机会尝试这个创意。一旦这样一个集装箱出现在社区，生活会发生多么重大的改变，怎样想像都不为过。如果这场运动流行起来，绝不逊于一场革命。

Chapter 13

集装箱清洁度标准

一般目标

应参照 ICS/IICL《集装箱清洗的一般指南》中所推荐的各种情况的具体清洗方法进行处理。这本指南中的检验标准与清洗方法旨在给用户提供得到适当清洗的集装箱。

以干货箱和敞顶箱为例：干货箱与敞顶箱清洗标准的首要目标是确保适于用这两种集装箱装运的货物不因集装箱问题而受到损坏。即，干货箱要保证足够清洁可以装运干货箱常见货物；敞顶箱要保证足够清洁可以装运敞顶箱货物。

干货箱装运的常见货物包括：家庭用品、罐装及瓶装货物、纸、托盘货物及包装货物、轮胎和其他不太易受污染影响的货物。敞顶箱货物通常包括机械、木材、建筑材料等重货。敞顶箱货物较干货箱常见货物不易受集装箱内环境和清洁状况影响。因此，敞顶箱标准对清洁度的要求低于干货集装箱通常的要求。但是诸如地面打滑这类状况，可能威胁到敞顶箱的安全装卸和操作，即使不危害敞顶箱货物，也必须处理。

其次，清洁度标准的另一个目标是要提供符合托运人和承租人接受要求的集装箱。此外，需要清洗时还有一个目标是通过将费用较高的方法(例如冲洗)替换为费用较低的方法(例如清扫)来减少不必要的清洗费用。

决定何时清洗的一般原则(各类集装箱)

决定何时清洗应该遵循下列规则：

出现以下一种或两种情况时，就要清洗。 1) 污染物或气味会沾染货物 并且 沾染上的物质或气味会对集装箱内装运的货物造成损害或威胁集装箱的安全装卸或操作 或者 2) 托运人或承租人不能接受集装箱的总体外观和清洁状况

作为一般原则，如果发现污染物可能沾染货物，且明显潮湿、油滑或粘着，或无法通过拂刷或掸拭轻而易举、不留痕迹地从货物上清除，就要清洗。污染物是否可能沾染货物可以通过用手指尖轻拭一下(不要磨擦)来做出判断。

物质的可沾染性会随外部的温度而改变。验箱员必须仅就检验时的外部状况判断污染物是否可能沾染，而无需考虑污染物在其他条件下的可沾染性。

一般来说，在干货箱和敞顶箱内部对箱底和箱顶的可沾染性标准比其他部位要宽松。此外，对箱内残留的无机物处理标准比有机物要宽松，因为有机物可能会导致发霉或寄生虫。某些无机物可以留在箱内，而所有的有机物必须清除。

检验标准

表 13.1 中包括了验箱时应予检查的一些具体缺陷的详情。

表 13.1　清洁检验标准

构件	状　　况	所需措施
箱内与箱外	标签，包括危险货物标签	修理
	污染(危险的或具有潜在危险的)	如污染情况可能威胁到人员生命健康，可将该集装箱拒之门外。否则要将该箱隔离，并与空箱回收代理人联系，以弄清污染物的类别及适当的处理方法。在接到指令前不可尝试清洗
	通风器上的胶带	修理
	腐蚀性货物或溢出物造成的油漆表面损坏	修理
箱内，包括箱壁、箱顶及地板	填缝剂上沾附的物质(除一般的尘土之外)	修理
	地板之间的缝隙内或侧壁波纹板处的有机货物残留(如豆类、粮食等)	修理
	可沾染的污渍、霉菌或真菌(除轮胎印记外)	修理
	菌虫类侵扰(除不可沾染的霉菌外)	修理
	胶带或其他材料松脱或粘附状况不良	修理
	粘性胶斑(无论大小)，包括粘性胶带及任何粘性残留物的斑块	修理
	持久的异味	修理
	冷凝水或积水	修理
	货物栓固用品，如留在绑绳杆、绑绳环、箱壁、顶部、地板等处的金属丝、金属带、电缆、铁链、线、绳等物	修理
	涂写	如与货物运输无明显关系，则需修理
箱外	涂写	修理



Exercises

用中文或英文回答问题

1．答案：确保适于用该种集装箱装运的货物不因集装箱问题而受到损坏。例如，干货箱要保证足够清洁可以装运干货箱常见货物；敞顶箱要保证足够清洁可以装运敞顶箱货物。

2．答案：敞顶箱标准对清洁度的要求低于干货集装箱通常的要求。但是诸如地面打滑这类状况，可能威胁到敞顶箱的安全装卸和操作，即使不危害敞顶箱货物，也必须处理。

3．答案：通过将费用较高的方法(例如冲洗)替换为费用较低的方法(例如清扫)来减少不必要的清洗费用。

4．答案：可以通过用手指尖轻拭一下(不要磨擦)来做出判断。

5．答案：对箱底和箱顶的可沾染性标准比箱内其他部位要宽松。

6．答案：对箱内残留的无机物处理标准比有机物要宽松，因为有机物可能会导致发霉或寄生虫。某些无机物可以留在箱内，而所有的有机物必须清除。

7．答案：需要。

8．答案：需要。

Reference Translation of the Extended Reading

化身自行车展厅的 40 英尺高箱

一家自行车制造商选用一个 40 英尺高箱作为运输和展览自行车的创新方式。也就是说，一个 ISO 集装箱已经被用作优质产品的展览和装配中心。

一个集装箱运到工厂里接受改造，从用来在世界范围内运输货物的 40 英尺高箱改造成一种独一无二的新事物——新型高端专业自行车的展厅。首先对其进行清洗并预涂底漆，准备进一步加工。设计师决定做两扇钢制推拉门，开在侧壁上作为进出口。这些钢制推拉门消耗的材料很少，所以是一种很好很经济的选择。门安装在箱壁波纹板上，附加材料仅仅有焊在切掉部分上的钢制框架和制成滑轨的梁。钢制推拉门顶端底端都有滚轴，易于开关。安装钢制推拉门之后，在集装箱内外喷涂了糖果红和白色。

不久之后，该集装箱发往了展会场地。第一站是加利福尼亚的蒙特利，第二十一届“年度海獭经典节”即将在此召开。“海獭经典”是一个历时 4 天的自行车盛会，有超过 8,000 名运动员、50,000 名自行车爱好者和其他热衷于自行车运动的人参加。几百名包括国家冠军和世界冠军在内的自行车手到“海獭经典节”参加比赛、签名、向粉丝们传授比赛技巧。“海獭经典节”还举办北美洲面向消费者的最大的自行车展。展览会招待几百家商贩，供他们展示新品、提供样品和特价商品。使用集装箱展厅的商户因为该展厅易于搭建而倍感兴奋，过去他们在帐篷里搭建一个展厅至少需要花费 3～4 个小时。他们对这个新型展厅的用户化和可移动性也很满意。他们觉得，这个集装箱展厅确实使他们与展览会上其他商家相比卓尔不群，如图 13.1 所示。事实上，这样使用回收集装箱标志着一个展览业和运输业的新时代的到来。



Chapter 14

清洗方法

一般清洗方法及典型应用

本节包括了对一些适用于集装箱清洗的方法的概括介绍。这些清洗方法是依照问题由轻到重的顺序列出的。

1. 清除碎片、线、绳、钉子及其他废物

货盘的木条、纸盒包装的残余物以及其他垫料和碎片要清理出集装箱。剪掉并清除线、绳和其他捆在绑扎杆或绑扎环上的东西。突出的钉子要拔掉或者将钉头砸平。

2. 清扫

灰尘、泥土以及小的货物残渣要扫出集装箱。但是，清扫不一定能够完全清除所有零散物质。细小物质残留可能会留在波纹板凹部里和地板部件之间。如果这些物质不是有机物(如咖啡豆等)，则不会对干货箱货物造成危害，因此是可以接受的。如有机物质卡在了地板板条之间，参照下面的办法将其刮除。

3. 用扁平或特制工具刮除

当有机残留物卡在地板板条之间或粘在箱内的填缝剂上时，可以使用专门形状的刮除工具进行清除。刮除是常用于清除标签、胶带或其他粘性物质的方法。随后可以用溶剂进行小

面积清洗来擦除粘性残留物。

4. 小面积清洗

小面积清洗在只需要清理小区域时使用。小面积清洗可能是用布吸干溅出的液体，用溶剂擦除油渍或其他污渍。

5. 电动砂纸打磨

电动砂纸打磨是小面积清洗法的替代方法，可以将油渍或其他物质从地板清除。受污染的部位用砂纸磨掉直至清洁的地板材料。

6. 冲洗

如果采用上述任何方法均无法清除地板的轻度污渍、集装箱地板或箱壁上残留的细小灰尘和其他污染物，可以用冷水在标准龙头水压下进行冲洗，视情况添加洗涤剂。

7. 高压冷水冲洗

用上述任何方法均无法从集装箱地板或箱壁上清除的地板污渍、细小灰尘和其他污染物可以用泵压驱动压力清洗机输出的冷水进行清洗，视情况添加洗涤剂。

8. 高压热水冲洗

泵压驱动燃烧器加热清洗机输出的高压热水加入洗涤剂是从集装箱地板上清除油渍的最有效的方法。此方法也是从各式集装箱内清除气味的标准方法。

9. 涂漆覆盖

涂写、箱壁上的污渍、干结粘着物薄层和箱壁上的小刮痕等均可涂漆覆盖，只要：①先清洗表面以保证油漆附着性；②涂漆后的表面与周围区域平滑衔接。该方法不适用于地板污渍。

10. 砂轮或钢丝刷电动打磨并上漆

厚的干结粘着物和箱壁上严重的刮痕可以打磨去除至金属裸面然后重新油漆。

11. 喷砂并重新油漆进行整新

箱内大面积的刮痕、粘性涂层、污渍及由腐蚀性货物引起的漆面受损以及其他此类严重的状况可以先喷砂再涂漆来进行清洗。该方法可以用于整个箱内或有选择地用于污染区域局部。

12. 部件替换

部件替换是最后的清洗手段，通常用于无法用高压热水加洗涤剂清洗的受到油污浸渍的地板。也可能适用于受到气味严重污染的地板。

选择清洗方法的通用原则

应该选择对于集装箱损害最小、最简便、最经济的既有效又对环境不利影响最小的清洗方法。所选的方法不应对集装箱的任何部分，如原有的涂漆、木地板等，产生任何破坏作用(例如在箱内草率使用喷砂设备造成邻近部件的损害)。为了避免在同一污染处采用多种方法，在采取任何措施前应该仔细考虑，选择适当的清洗方法。如果必要的话，可以在污染区域的小范围内试验方法的有效性。



Exercises

I. 用中文或英文回答问题

1．答案：拔掉或者将钉头砸平。

2．答案：如果不是有机物(如咖啡豆等)，则不会对干货箱货物造成危害，因此是可以接受的。当有机残留物卡在地板板条之间或粘在箱内的填缝剂上可以使用专门形状的刮除工具进行清除。



3．答案：可以刮除，然后用溶剂进行小面积清洗来擦除粘性残留物。

4．答案：可以用小面积清洗的方法，例如用布吸干溅出的液体，用溶剂擦除油渍或其他污渍；也可以用电动砂纸打磨的方法将油渍或其他物质从地板清除。

5．答案：干结粘着物薄层和箱壁上的小刮痕可涂漆覆盖，厚的干结粘着物和箱壁上严重的刮痕可以打磨去除至金属裸面然后重漆。

6．答案：可以先喷砂再涂漆来进行整新。

7．答案：小面积清洗或电动砂纸打磨在只需要清理小区域时使用，可以将油渍从地板清除。泵压驱动燃烧器加热清洗机输出的高压热水加入洗涤剂是从集装箱地板上清除油渍的最有效的方法，也是从各式集装箱内清除气味的标准方法。无法用高压热水加洗涤剂清洗的受到油污浸渍的地板或是受到气味严重污染的地板，可以替换。

8．答案：应该选择对于集装箱损害最小、最简便、最经济的既有效又对环境不利影响最小的修理方法。所选的方法不应对集装箱的任何部分，如原有的涂漆、木地板等，产生任何破坏作用(例如在箱内草率使用喷砂设备造成邻近部件的损害)。避免在同一污染处采用多种方法。如果必要的话，可以在污染区域的小范围内试验方法的有效性。

II. 英译汉

1．答案：刮除
2．答案：电动砂纸打磨
3．答案：电动打磨并上漆
4．答案：高压冷水冲洗
5．答案：涂漆覆盖
6．答案：喷砂并重新油漆进行整新

III. 汉译英

1．答案：removal
2．答案：sweep out
3．答案：spot cleaning
4．答案：washing
5．答案：hot high-pressure wash
6．答案：component replacement

Reference Translation of the Extended Reading

改用来存储计算机数据的集装箱

圣乔诺隘口，加利福尼亚风最大的地区之一，1982 年建立了一座风力发电站，这家发电站已经成为加利福尼亚三座主要的风力发电站之一。这些年间，高度从 80 英尺到 160 英尺不等、数量众多的风轮机已经成了该地区自然景观的一部分。最近，圣乔诺风电站计划创建一个经济且极其安全的空间来安置监控风电站电机效率的计算机设备。

他们改装了一个 20 英尺集装箱来满足这项需要，如图 14.1 所示。整个集装箱内部加以隔热以保证箱内的低温。此后在箱壁上切出了一个 36 英尺的波纹板门。然后，波纹板门也做了隔热处理，又安装了安全牢靠的门锁系统。由于这个集装箱实质上会成为监控风轮机发电的数据中心，还需要一个大负载电源组。使用集装箱并进行适当的改造既保证了安全性，也确保了敏感的设备存放于温控环境中。

使用集装箱是创建安全空间的理想方法，因为设计、制造集装箱的目的正在于此。由于集装箱是密封、钢制的，它们安全、防风、防水，甚至可以防啮齿类动物啃食。此外，因为集装箱完全可以移动，如果圣乔诺电站决定把电力监控系统搬到另一个地方，他们只需要给集装箱搬个家。

这是个令人惊异的工程，因为它不仅完全“绿色”，而且很经济，因为如果用钢以外的其他材料建造这个空间会贵得多，还可能没有这么安全。从长远来看这项工程也很省钱，因为集装箱往往比钢以外的其他材料构造的建筑物用得更久。

集装箱为这座给南加州大量供电力的风电站提供了一种安全的存储方案。看着集装箱进行如此的改造的确很有意思，而且看到 ISO 集装箱的另一个有趣的用途也十分令人激动，这个新用途就是：它们正开始用于存储计算机数据。

Chapter 15

状况图片及建议方案

状况图片：干货箱及敞顶箱

为了帮助集装箱航运、出租、检验、修理行业在各种情况下选择适当的清洗方法，《集装箱清洗一般指南》将多种情况用 78 张彩色照片的形式罗列出来。每一张照片下面都有文字对图示情况进行描述，同时有一张小表格提供集装箱类型和如果出现这种情况需采取的措施等信息。(注意指南在确定集装箱是否需要清洗时区别了干货箱和敞顶箱。)在需要清洗时还提供了有关适当清洗方法的简明建议。

本指南中的状况图片并非要完全列举实际操作中集装箱内外可能出现的所有状况。这些图片代表了一些普遍性的情况，仅供参考。要决定某个特定的状况是否需要清洗，验箱员应将集装箱脏污情况与描述该情况最相近的图片进行比较，并参考相应最符合情况的图片提供的方法来选择集装箱清洗方法。

以下是用来说明验箱员在检验干货箱或敞顶箱清洁度时可能遇见的典型状况的 78 张彩照中的一部分，如表 15.1 所列。

表 15.1　照片参考索引

构　　件	状　　况	图　　号
地板	污渍	15.1
	货物残留	15.2
	燃烧痕迹	15.3
墙面	灰尘和污物	15.4
	霉菌	15.5
	胶带	15.6
	胶粘剂	15.7
	杂物	15.8
内部表面	危险物质	15.9
外部	涂写	15.10～15.11
	溢出物	15.12



图 15.1 所示为可沾染的潮湿的液体污渍，会损坏干货箱内的货物，但不会损坏敞顶箱内的货物。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
地板	地板污渍	干货箱	修理	高压冷水冲洗
		敞顶箱	无	无

图 15.2 所示为集装箱内的有机残留物(如，咖啡豆)。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
地板	货物残留	干货箱	修理	刮除/清扫
		敞顶箱	修理	刮除/清扫

图 15.3 所示为地板上可沾染的燃烧痕迹，可能损坏干货箱货物，货物托运人和集装箱承租人不接受此类情况出现在干货箱内，但对敞顶箱则可以接受。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
地板	烧痕	干货箱	修理	电动砂纸打磨
		敞顶箱	无	无

图 15.4 所示为墙面上的灰尘和污物，会损坏干货箱内的普通货物，但不会损坏敞顶箱内的货物。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱壁	灰尘和污物	干货箱	修理	冲洗
		敞顶箱	无	无

图 15.5 所示为霉菌或霉层。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱壁	霉菌	干货箱	修理	高压热水冲洗
		敞顶箱	修理	高压热水冲洗

图 15.6 所示为箱壁上残留的胶带，货物托运人和集装箱承租人不会接受用于货物运输。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱壁	胶带	干货箱	修理	刮除/小面积清洗
		敞顶箱	修理	刮除/小面积清洗

图 15.7 所示为干结的胶粘剂，货物托运人和集装箱承租人不会接受用于货物运输。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱壁	胶粘剂	干货箱	修理	电动打磨/上漆
		敞顶箱	修理	电动打磨/上漆

图 15.8 所示为绑绳环上的线绳，不会被接受用于货物运输。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱壁	杂物	干货箱	修理	清除
		敞顶箱	修理	清除

图 15.9 所示为有迹象表明可能有毒或危险的物质，不论数量多少、是否会沾染。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
内部表面	危险物质	干货箱	修理	*
		敞顶箱	修理	*

*可以根据仓管员的判断拒收此集装箱。否则必须将该集装箱隔离开来，联系空箱回收代理人，以确定污染的类型及所需的适当措施。

图 15.10 所示为客户做的标记，不会被接受用于干货箱和敞顶箱货物运输。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱外	涂写	干货箱	修理	小面积清洗/油漆
		敞顶箱	修理	小面积清洗/油漆

图 15.11 所示为干货箱和敞顶箱货物运输不能接受的涂写。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱外	涂写	干货箱	修理	涂漆覆盖
		敞顶箱	修理	涂漆覆盖

图 15.12 所示为外部的溢出物侵蚀油漆，不能用于干货箱和敞顶箱货物运输。

构件	状况	集装箱类型	所需措施	推荐的清洁方法
箱外	溢出物	干货箱	修理	喷砂/重新油漆
		敞顶箱	修理	喷砂/重新油漆

安全及环境考虑

在检验及清洗集装箱的过程中，验箱员和修理人员应遵守安全规定。

如果验箱员有理由认为任何残留物或气味会对人员或环境造成危害，他必须找空箱回收代理人寻求建议。如果认为情况有危险性，清洗站必须寻求正确清洗方法的专业指导。在可能的危险物质得到确认并接到适当的清洗指令之前，切莫试图清洗。一些看似无害的物质即使遇水后也会发生剧烈反应，对人员、财产造成危险。

如果条件许可，应该穿戴防护衣物，如手套、面具等。在使用清洁物质时要小心，特别要注意使用的清洁剂与所清洗物质化合可能引起的化学反应。如果使用溶剂，应保证该区域通风良好，且附近没有火星或明火。

应以对环境负责的态度处理所有清洁剂和使用的物质。



Exercises

用中文或英文回答问题

1．答案：应将集装箱脏污情况与最相近地描述了该情况的图片进行比较，参考相应最符合情况的图片提供的方法来选择集装箱清洗方法。

2．答案：可以根据仓管员的判断拒收此集装箱。否则必须将该集装箱隔离开来，联系空箱回收代理人，以确定污染的类型及所需的适当措施。在接到指令前不可尝试清洗。

3．答案：因为一些看似无害的物质即使遇水后也会发生剧烈反应，对人员、财产造成危险。

4．答案：应保证该区域通风良好，且附近没有火星或明火。

5．参考答案：首先，选择正确的清洗方法既可以节约成本，又可以降低产生废液废气对环境的污染、减少因清洗方法不当造成对箱体的损伤。同时，清洗过程中也要关注产生的废液的收集处理、废气的收集处理等问题。

Reference Translation of the Extended Reading

怎样用金属集装箱造房子

集装箱运输着世界上的贸易品，但是在它们漂泊的日子结束以后常常造成环境问题。

用废弃的集装箱做什么呢？现在用来造房子。二手集装箱像积木一样组装起来可以满足从临时收容所到豪华的海滨房屋的各种住房需求。用金属集装箱造成的房子既坚固又经济适用又无害于环境，成了时髦的理念。这激发你的创意了吗？

说明

1. 设计集装箱房屋布局。经验丰富的DIY爱好者应该可以解决一两个集装箱的简单设计方案，但复杂的设计还是需要职业建筑师。令人欣喜的是越来越多的建筑师在货运集装箱建筑工程上更加专业化了，他们有现成的方案和成套配件。

2. 找当地集装箱转销商买集装箱。通常二手集装箱有两种规格——40×8×8.5英尺和20×8×8.5英尺——每个价格在1,000美元到3,000美元不等。要确保最终价格包括运抵建筑工地的费用。

3. 用灌浇混凝土或整体基础建造立式底座，要有足够的钢筋来提供坚实的基础。在底座的角部预埋钢板。

4. 用起重机将集装箱安放到位。将集装箱角件焊接在已经埋入底座的钢板上。同样，把两个集装箱衔接处的接缝焊接起来。

5. 用等离子金属切割机切出门窗的开口。除去集装箱衔接处的侧壁以创造更大的内部空间(或者在将集装箱安放到底座上之前进行切割)。

6. 按照传统的房屋建筑惯例完成内部装修。安装抽水马桶和电线以满足地方法规的要求。在内外墙之间填加隔热层或者内外使用喷涂的陶瓷隔热层。用木材或金属边框给门、窗和内墙上框。铺底层胶合地板。完成内部装修。

7. 可以保留外部的原始集装箱状态，上漆，表面涂上泥灰，也可以使用纤维板侧墙。(按设计要求)加房顶以完成外面装修，也可以保持平顶，这样外观就比较现代。

提醒

要确保用集装箱建造房屋符合当地的建筑法规。

附录 B

验 箱 单

××××××××××× Co. Ltd.

ON HIRE CONTAINER SERVEY REPORT

RELEASE NUMBER ______________ MFG DATE □□□□ CLINET ______________

CONTAINER NUMBER □□□□□□□□□□□ MATERIAL □ DEPOT ______________

EQUIPMENT TYPE □□□□ GROSS WT □□□□□ SERVEY DATE □□□□□□

CRITERIA □ PHOTO □□ TARE WT □□□□ SERVEYOR ______________

CSC DUE □□□□ ACEP □ CSC NO. ______________

CRITERIA: 1—IICL 2—CRAGOWORTHY X—OTHER

MATERIAL: S—STEEL A—ALUMINIUM F—FRP P—ARMOTPLATE X—OTHER

SURVEY CODES

BK broken	CT cut	LS loose	AJ adjust	ST straighten
BO bad odor	DL delaminated	MS missing	IT insert	SE section
BT bent	DT dented	RO rusted out	IR improper repair	SW straighten and weld
CK cracked	GO gouged	SN stained	PT patch	WD repair by weld
CR corrosion/rusty	HO holed	WT wear+tear	RP replace	PA paint
			RS re-secure	TR temporary repair

COMMENTS:

SURVEY RESULT:

ACCEPTED □

ACCEPTED WITH REMARKS □

NOT CARGO WORTHY □



CONTAINER ON(OFF)-HIRE SURVEY FORM **×××××××××× CONTAINER SERVICE LTD**

CONTAINER PREFIX				NUMBER							CUSTOMER CODE						SURVEY DATE					
																	d	d	m	m	y	y
LOCATION					DEPOT		CONTAINER TYPE				SURVEY TYPE				CSC DUE DATE				SURVEYOR			
															m	m	y	y				
CONDITION																	REF. NO					
(1)= No IICL Damage Wear & tear and improper repair are as noted (2)=Cargoworthy (3)=Wind+water tight (4) Seaworthy (5)=Owner																						

TOP(T)

RIGHT SIDE(E)

LEFT SIDE(L)

FLOOR INTERIOR(I)

View From Above CROSS MEMBERS(C)

Cross Member No From Rear

OUTRIGGER(O)LEFT

OUTRIGGER(O)RIGHT

FORK POCKETS(P)

GOOSENECK TUNNEL RAIL(R)&PLATE(G)

BACK(B)

FRONT(F)

Remarks____________________ **MFD** :__________

____________________ **TW** :__________

____________________ **GW** :__________

____________________ **Notation Qty** :__________

DAMAGE CODES

1. Numbers shown indicate dent depths in millimeters.
2. Description of other existing conditions shown by matching one letter from column A (type of damage) with one letter from Column B (affected component).

____

SURVEYOR

Column A—Type of Damage

A=Putty or Caulk Filled	N=Burned
B=Broken/Cracked	O=Obnoxious Odor
C=Compression Line	P=Damaged Coating or Paint
D=Dented	Q=Leaking/Caulking problem
E=Replaced	R=Rusted/Corroded
F=Frozen/Seized	S=Stained
G=Gouged/Scratched	T=Torn/Cut
H=Holed	U=Distorted/Bent
I=Improperly Repaired (Tech)	V=Unpainted/Improper Material Used
J=Delaminated	W=Poor Workmanship on Repair
K=Loose/Separated	X=Debris/Dirty
L=Labels/Graffiti	Y=Outside Castings
M=Missing	Z=Inserted Sectioned, Patched

Column B—Affected Component

A=ForkPocket Strap	N=Gasket
B=Locking Bar	O=Door Rod Retainer/Guide
C=Crossmember	P=Panel
D=Door Handle	Q=Pain Gutter
E=Forkpocket Wall-Front	R=Roofbow
F=Frame	S=Lashing Strap or Ring
G=Gusset	T=Tarpaulin/TIR Cable
H=Hing/HingePin/Cam/Keeper	U=Bracket/T-clip/Corner Tab
I=Forkpocket Wall-Rear	V=Ventilator
J=Threshold Plate	W=Floor or Liner
K=Door Tieback	X=Fastener or Weld
L=Side Post	Y=Handle or Gasket Retainer
M=Marking/Decal/Data plate	Z=Tunnel

长度单位换算表

Metric Units	**公制单位**
1 meter = 1000 millimeters	1 米 = 1000 毫米
1 millimeter = 0.001 meter	1 毫米 = 0.001 米
US Customary Units	**美制单位**
1 foot = 12 inches	1 英尺 = 12 英寸
1 inch = 0.0833333333333333 foot	1 英寸 = 0.0833333333333333 英尺
Metric to US Customary Units	**公制单位换算为美制**
1 millimeter = 0.03937 inch	1 毫米 = 0.03937 英寸
1 meter = 3.2808 feet	1 米 = 3.2808 英尺
US Customary Units to Metric	**美制单位换算为公制**
1 inch = 25.4 millimeters	1 英寸 = 25.4 毫米
1 foot = 0.3048 meter	1 英尺 = 0.3048 米

附录 C

估 价 单

××××××××××

Equipment Repair Estimate

Vendor Code:	×××	Facility Code:	×××				
Local Ref No.		Estimate No.:		EstimateDate:×××			
Equipment:		Size Type:	20GP / 2200	Creator:×××××××××		Purpose:	
×××		ManufactureDate:	-	Material:		Steel	MachineManufacture:
Date in Service:	-	IC/CSC Plate:	/	Manufacturer:		DPP:	
Owner:	×××	Micro No.:		Tare/Max Weight:	/		
Compressor No.:		Approved By:		Board No.:		FinishDate:	-
AuthDate:	-	Plus Tax:	0.00	Start Date:	-	OwnerCost:	
Currency:	×××	BillingNo:		CarrierCost:2170.34			
AppAmount:	0.00						
Remark:							

RepCode	Component	RepType	Length	Width	Index	Location	Damage	Pieces	LabRate	LabHour	LabCost	MaterialCost	CarrierCost	OwnerCost	ResParty
12051	PAA	GS	120.00	120.00		RB3N	BW	1	16.98	3.00	50.94	15.66	66.60	0.00	Carrier
	Straighten side panel														
12051	PAA	GS	120.00	120.00		LB3N	BW	1	16.98	3.00	50.94	15.66	66.60	0.00	Carrier
	Straighten side panel														
14166	FPP	RP	0.00	0.00		BL3N	BR	1	16.98	2.80	47.54	231.89	279.43	0.00	Carrier
	Replace plywood floor within 60cm×115cm with screws														
14753	MCO	CC	0.00	0.00		BXXX	DY	1	16.98	1.30	22.07	46.98	69.05	0.00	Carrier
	Chemical clean entire interior 20’ container														
14062	FPP	RP	0.00	0.00		BX45	BR	2	16.98	5.80	98.48	681.23	1559.42	0.00	Carrier
	Replace plywood floor within 240cm×115cm with screws														
12708	PAA	GS	120.00	120.00		FB23	BW	1	16.98	3.00	50.94	15.66	66.60	0.00	Carrier
	Straighten front panel														
13383	LBA	RS	0.00	0.00		DT3N	BW	1	16.98	0.35	5.94	4.72	10.66	0.00	Carrier
	Straighten and resecuring locking bar bracket (each)														
13378	LBA	WD	0.00	0.00		DT3N	BW	1	16.98	0.30	5.09	3.96	9.05	0.00	Carrier
	Reweld cam (each)														
13376	LBA	GS	0.00	0.00		DT2N	BW	1	16.98	0.65	11.04	7.83	18.87	0.00	Carrier
	Straighten door locking bar (each)														
13177	DCS	SN	30.00	0.00		DB2N	CK	1	16.98	0.45	7.64	16.42	24.06	0.00	Carrier
	Section door seal (with reset strip)														

附录 D

IICL 模拟测试题及答案

IICL Practice Quiz

1. A removable roof structure is used in ______.

(A) a dry-van ctr.

(B) an open-top ctr.

(C) a flatrack ctr.

(D) a high-cube ctr.

2. Which of the following parts does a rear end frame consist of ______.

(1) Two rear corner posts

(2) Two corner fittings

(3) Four rear corner posts

(4) A transverse rear header

(5) Four corner fittings

(6) A rear sill

(7) Two rear sill

(A) (1)(2)(4)&(6)

(B) (6)(1)(4)&(7)

(C) (3)(5)(4)&(6)

(D) (6)(5)(4)&(1)

3. The component which is a vertical structural member at either side of an end frame of a container joining a top and a bottom corner fitting is ______.

(A) side post

(B) corner post

(C) lock bar

(D) none of them

4. A plate added to, or placed on top of, an original plate for adding stiffness or local strength at top corner fittings is called ______.

(A) corner gusset

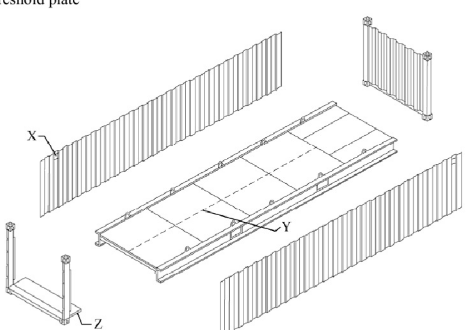
(B) roof panel

(C) header extension plate

(D) doubler panel



5. What kind of floor needs a center spacer? _______.
   (A) Plywood panels
   (B) Solid hardwood planks
   (C) Steel planks
   (D) laminated hardwood planks
6. The gooseneck tunnel is positioned at _______.
   (A) the front end
   (B) the door end
   (C) the right end
   (D) the left end
7. Component X in the diagram below is _______.
   (A) marking panel
   (B) top rail
   (C) ventilator
   (D) door hinge
8. Component Y in the diagram below is _______.
   (A) outrigger
   (B) crossmember
   (C) center spacer
   (D) side rail
9. Component Z in the diagram below is _______.
   (A) rear header
   (B) header extension plate
   (C) door sill
   (D) threshold plate



10. What does top side rail connect to? _______.

(A) Header & threshold plate

(B) Bottom side rail & sill

(C) Roof bow & J-bar

(D) Roof panel & side panel

11. It should be repaired, when the difference between D_1 and D_2 for 40' container is _______.

(A) 16mm

(B) 19mm

(C) 13mm

(D) 20mm

12. Which of the following external lengths is (are) beyond ISO dimension of the 20 ft container? _______.

(1) 6,501mm (2) 6,509mm (3) 6,055mm (4) 6,054mm

(A) (2) (3) & (4)

(B) (1) (3) & (4)

(C) (1) & (2)

(D) none of them

13. According to the *Guide for Inspection*, when does an inspector inspect the containers? _______.

(A) On hire/off hire interchange

(B) After a major repair

(C) To be interchanged from one company to another

(D) Transferred from one mode of transport to another

14. What are one or more physical defects caused by continuous deterioration in the physical condition of the container occurring under normal-use? _______.

(A) Damage

(B) Wear

(C) Non conforming repair

(D) None of them

15. The defects of loosing or missing removable parts are considered _______.

(A) damage

(B) wear

(C) non conforming repair

(D) all of them

16. Corrosion of metal components due to contact with foreign substances should be considered as _______.

(A) damage

(B) wear

(C) non conforming repair

(D) none of them



17. On all inbound ctrs, the inspector's responsibility are, ①ensure that any repairworthy damage is found、②ensure that any repairworthy damage is designated for repair、③explain how to repair the ctrs. ________.

(A) ①

(B) ①②

(C) ①②③

(D) ②

18. What does non-conforming repair mean? ________.

(A) Not being performed in accordance with IICL recommended repair methods

(B) Not being performed in accordance with the applicable government recommended repair methods

(C) Not being performed in accordance with the local recommended repair methods

(D) None of them

19. If tarpaulins patches are not installed in accordance with regulations, this defect is called ________.

(A) damage

(B) wear

(C) non-confirming repair

(D) none of them

20. Which of the following items should be considered as wear? ________.

(A) Cargo debris of dunnage accumulation inside the container

(B) Rot of plywood

(C) Floor expansion due to excess moisture

(D) Contamination due to infestation, stains or odor

21. Which should be considered as damage? ________.

(A) Floor delamination due to excess moisture

(B) Adhesion failure of decals

(C) Paint failure or fading

(D) Corrosion of metal components not due to contact with foreign substances

22. Which of following condition should be considered as wear? ________.

(A) Cracks and splits in plank floor accompanied by dents or gouges

(B) Cracks and splits accompanied by underlying crossmembers permanently bowed downwards

(C) Plank is broken

(D) Laminated plank floor is delaminated

23. Top rail dents or bends within 250mm of corner fittings, when deep ________, require repair.

(A) 5mm and there is a crack

(B) 10mm

(C) 25mm

(D) 35mm

24. The corrugated steel side/front panels need repair, except when the deformation such as dent, bent, etc. is ________.

(1) 5mm (2) 10mm (3) 15mm (4) 20mm (5) 25mm (6) 40mm

(A) (1) (2) (3) (4) & (5)

(B) (1) (2) (3) & (4)

(C) (4) (5) & (6)

(D) all of them

25. The front sill of 40ft ctr. bends outwards as following, which statement is correct according to the IICL+ISO damage limits? ________.

(A) Max. 5mm beyond plane of end surface of corner fittings

(B) Sill face must be at least 4mm behind plane of corner fittings

(C) Sill face must be at least 2mm behind plane of corner fittings

(D) Sill face must be at least 1mm behind plane of corner fittings

26. If corrugated roof panels bend, the criterion of repair is ________.

(A) more than 30mm

(B) more than 35mm

(C) more than 50mm

(D) more than 25mm

27. According to the IICL+ISO damage limits, roof panel upwards: maximum ________ above plane of upper surface of top corner fittings.

(A) 10mm

(B) 5mm

(C) 4mm

(D) 1mm

28. Which of the following is a condition of a plank floor which requires repair AND should be considered as damage? ________.

(A) A crack or split with no evidence of impact, which leaks light

(B) A crack or split with a sign of impact which does not leak light

(C) A crack or split adjacent to a dented bottom rail, which leaks light

(D) A crack or split, with no evidence of impact, with a loose piece

29. Each of the following components has a single 30 mm ($1\frac{1}{4}$ in) dent. Which one requires repair? ________.

(A) Corner post

(B) Door panel

(C) Roof bow

(D) Bottom side rail

30. Which of the following defects on a door assembly should not be repaired according to IICL's recommendation? ________.

(A) Broken component

(B) Cut

(C) Missing

(D) Panel dented 27mm

31. The limits of damage are based on comparison with _______.

(A) the conditions of the CTR when received

(B) the original profiles and strength of the CTR

(C) either of them

(D) none of them

32. A CTR is received on-hire with a front panel dent of 30mm depth, when the CTR is presented for inspection at off-hire, the dent depth has enlarged to 40mm. _______.

(A) The dent must be repaired.

(B) The dent must be not repaired.

(C) Repair the dent only to its former 25mm size.

(D) Repair the dent to less than 35 mm deep.

33. In measuring, when conflicts exist between metric and U.S. customary dimensions, which is to take precedence? _______.

(A) Metric

(B) U.S. customary

(C) Both of them

(D) None of them

34. An impact causes a 10mm deep dent in the corner post, at the same time, the adjacent side panel dents inwards by 40mm depth, what is the correct action? _______.

(A) Both the top side rail and side panel must be repaired

(B) Only the side panel must be repaired

(C) Only the top-side rail must be repaired

(D) None of them

35. Which of the following statement is true? _______.

(A) If repair is performed, it must restore damaged areas to their original dimensions and strength

(B) There is a upwards bow on roof panel, the deep is 45mm, it must be checked out if exceeding ISO+IICL damage tolerances

(C) The criterion for all side panels is more than 30mm

(D) The criterion for door panels is more than 30mm

36. All of the following procedures are required EXCEPT _______.

(A) Weld smoke, spatter, etc. must be removed to permit adhesion of paint.

(B) The damaged component(s) must be restored as close as possible to original size and profile.

(C) Welds must be examined using radiographic or magnetic particle non-destructive testing equipment.

(D) Replacement steel components must be painted with coating compatible with that originally applied to the container.

37. Which repair method is not permitted for the front corner post? ________.

(A) Welding

(B) Straightening

(C) Patching

(D) Inserting

38. Why do we set a reference line? ________.

(A) To establish the original, undamaged profile of the damage area

(B) To decide the damage which need repair and which don't need repair

(C) To measure the damage depth

(D) None of them

39. For convex damage, the correct calculation method is ________.

(A) D=M−S

(B) D=S−M

(C) M=D−S

(D) S=M−D

40. Which of the following parts should be inspected on both occasions when the container is in-bound and out-bound? ________.

(1) corner post (2) door sill (3) decals and marking (4) wooden flooring

(A) (1) & (2)

(B) (2) & (3)

(C) (1), (3) & (4)

(D) (1), (2), (3) & (4)

41. When must a reference line extend the full length of a bottom side rail? ________.

(A) When there are two or more areas of damage on the bottom side rail

(B) When there is a sharp bend in the bottom side rail

(C) When there is a bowing over the entire bottom side rail

(D) When there is additional damage to the bottom side rail so that the reference line cannot be positioned over the ends

42. There is a localized damage to an end rail, the reference line should be placed ________.

(A) over the undamaged area

(B) over the full length of the rail

(C) both of above

(D) none of them

43. If a label is found on the wall of a container without defacement, it should be ________.

(A) left without repair

(B) removed

(C) reported to owner

(D) moved to other place



44. When the ctr. interior has the following defects, which one doesn't need repair according to *the Guide*? _______.

(A) organic cargo residues

(B) graffiti

(C) tire marks

(D) persistent odor

45. Of the following conditions in a dry-van container, which one would require cleaning? _______.

(A) Raised mud foot prints in excess of what might normally remain after a sweep out

(B) Dry dust covering dried floor stains as might normally be found after a sweep out

(C) Coffee beans remaining inside the container as might occur after a sweep out

(D) Polyurethane beads as might be expected to lodge in grooves between floorboards after a sweep out

Keys to IICL Practice Quiz

1. B	2. D	3. B	4. A	5. A	6. A	7. C	8. C	9. D	10. D
11. D	12. C	13. A	14. B	15. A	16. A	17. C	18. A	19. C	20. B
21. A	22. D	23. A	24. A	25. D	26. B	27. C	28. C	29. A	30. D
31. B	32. A	33. A	34. A	35. A	36. C	37. C	38. A	39. B	40. D
41. C	42. C	43. B	44. C	45. C					

附录 E

词汇及词组表

词 汇 表

说明：T 指该词出自课文，R 指该词出自补充阅读，阿拉伯数字指该词出自的章。

词汇	章
abandon	8R
abrasion	5T
abrasive	14T
acceleration	4R
access	9T
accessory	2T
accommodate	3T
accompany	10T
acknowledge	4R
adhere	13T
adhesive	13T
adjacent	3T
adsorption	6R
adverse	14T
afford	11R
agent	2R
Alaska	8R
Aleutian	8R
Alignment	10T
alongside	1T
alternate	3T
alternative	11R
aluminum	2T
amateur	12R
ambient	1T
amenity	10R
amount	6R
anchor	10T
anticipate	2R
aperture	3T
appropriate	1R
approval	11R
arch	3T
architecture	9R
archive	9R
Arctic	8R
ascend	14T
ascertain	10T
ashore	2R
assemble	2R
assembly	6T
assess	1T
asset	5R
associate	2T
assume	2R
assumption	12T
Atlantic	8R
attach	2T
authorization	8T
authorize	5T
autofocus	9T
autograph	13R
axis	3R
backer	9R
balcony	10R
bar	2T
bare	13T
bargain	13R
batch	8R
batten	7R
bear	3R
bend	5T
bent	9R
berth	2R
biotic	4T
blast	14T
blend	14T
bob	8R
bottle	13T
bow	5T
break	5T
brick	11R
brochure	1T
brush	13T
bulge	12T
bulk	1T
burner	14T
cabin	9R
calculation	11T
cam	3T
camber	11T
can	13T
canteen	9R
capacity	3R
capital	11T
caption	15T
capture	10T
cardboard	14T
cargo	1T
category	10T
caulk	13T
celebration	13R
central	4T
ceramic	15R
chalk	9T
chamber	5T
champion	13R
characteristic	2T
charismatic	8R
chassis	1T
christen	8R
circuit	8R
circulate	8R
climatic	4T
clinic	9R
clip	9T
clipboard	9T
cluster	11R
coat	8T
cocoa	6R
collapse	2R
combination	3T
combine	10T
commerce	9R
commitment	4R
community	12R



Word	Unit
comparison	1T
compatible	3R
complex	10R
compliance	2T
complicated	11R
component	3T
composite	3T
concave	10T
concept	10R
concrete	15R
condensation	9R
condo	10R
condominium	10R
conflict	7T
conform	5T
conjecture	13T
conscious	4T
consign	1T
consistency	10T
consistently	8T
conspire	4T
constant	1R
constitute	9T
construction	1T
consult	5T
consume	13R
containerization	1R
contamination	3R
content	2T
convention	3T
convert	1R
convex	11T
corresponding	4R
corrosion	5T
corrugate	3T
cosmetic	8T
costly	5T
counter	4T
counterbalance	7R
course	6R
crack	5T
crane	15R
crash	10R
crew	2R
criterion	5T
crossmember	3T
cube	1T
current	8R
curvature	11T
curve	11T
customary	7T
customization	13R
cut	5T
cutout	13R
cycling	13R
damage	5T
damp	15T
debris	9T
deck	1R
decorate	15R
deface	6T
defect	5T
deflection	10T
deformation	6T
demonstrate	7T
denote	11T
dent	5T
depart	2R
depict	15T
deposit	7R
depot	5R
desiccant	7R
designate	5T
desorption	6R
destination	1R
destructive	14T
detect	3R
detection	5T
detergent	14T
deterioration	5T
detrimental	14T
Detroit	10R
device	8T
devise	4T
dew	7R
diagonal	3T
diagram	3T
diameter	6T
differ	4T
differentiate	15T
dimension	3T
discard	10R
discharge	1T
discretion	15T
dispatch	3T
display	13R
disposable	1T
dispose	8T
distinction	1T
distinctly	1R
distribution	3R
dockman	2R
dome	1T
downtown	10R
drain	2T
drainage	3T
ducky	8R
ductless	10R
dunnage	14T
durable	5T
dust	3R
dynamic	4T
eatery	11R
economist	2R
efficiency	10R
eliminate	13T
embed	15R
emergency	9R
enclosure	9R
encounter	1R
endanger	3R
enormously	7R
entail	11R
enthusiast	8R
entrepreneur	9R
envelope	7T
equilibrium	6R
equivalent	2R
era	13R
essential	4T
essentially	14R
estate	10R
estimate	9R
evaporate	6R
exaggerate	12R
exceed	4T
exception	10T
exceptional	10R
execution	4T
expansion	2T
expert	4R
expose	4T
exposition	13R
extend	7T
extensively	9R
exterior	3T
external	4R
fabric	7R
factor	1T
fair	11R
fasten	6T
feasible	2R
feature	3T
ferrous	7R
festival	11R
fiberboard	15R
field	10T
figure	11R
financial	12R
fine	14T

Word	Unit
finish	15R
fitting	2T
fixed	1T
fixture	8T
flame	15T
flaw	8T
flexible	2T
float	8R
floate	8R
flotilla	8R
fluctuation	7R
flush	14T
fold	2T
foodstuff	2T
foresee	2R
forwarder	1R
frame	2T
framework	3T
freight	2R
freighter	1R
function	12R
functionally	5R
fundamental	3T
fungus	13T
furniture	9R
fuse	8T
garage	5R
gaseous	2T
gasket	3T
gauge	9T
generate	4R
genuine	8R
globalization	2R
glove	8T
glue	13T
glut	9R
goggle	8T
gooseneck	3T
gouge	9T
graffiti	13T
gravity	1T
grind	14T
guarantee	2R
gusset	3T
gyre	8R
hail	8R
halfway	8R
hammer	9T
handful	11R
handle	3T
hard-top	2T
hardware	6T
hatch	1T
haul	9R
hauler	1R
Hawaii	8R
hazard	5T
hazardous	3R
header	3T
highway	12R
hinge	3T
hole	5T
hone	12R
hook	11R
horizontally	11T
hose	1T
host	13R
house	14R
household	13T
humidity	6R
hut	9R
hydraulically	8T
hygroscopic	6R
identical	1T
identify	4R
idle	9R
ignore	11T
illegible	6T
illustrate	3T
impact	5T
impair	6T
impede	13T
implement	4T
imply	5T
import	2R
inadequate	4T
inboard	6T
inbound	5T
Inc.	1R
incorporate	1T
indicate	4R
inevitable	4T
infestation	9T
infill	10R
infrastructure	12R
initial	1T
initially	7T
inland	2T
inlet	1T
innocuous	15T
innovative	10R
inorganic	13T
insert	2T
insert	8T
inspector	3T
install	4T
instance	5T
institute	5T
insulate	1T
intact	5R
integrated	12R
integrity	5T
intercept	7R
interference	6T
interior	3T
intermodal	9T
internal	4R
invest	1R
invulnerable	5T
jeopardize	7T
Kenya	12R
kiln	12R
kit	15R
Kodiak	8R
laboriously	2R
laminate	3T
landscape	10R
lash	2T
launch	11R
layer	3R
leak	6T
lease	1T
Leatherman	9T
Lego	9R
lessee	13T
lessor	5T
liable	7R
light-tight	6T
likelihood	7R
liner	1T
liquefy	2T
literature	1R
livestock	2T
local	12R
locate	3R
location	11R
logical	4R
longitudinal	3T
lubricant	8T
lug	2T
lumber	13T
luxury	15R
magnet	9T
maintenance	7T
manipulate	6R
manipulate	7R
manual	5T
manufacture	6R
marine	2R



Word	Unit
maritime	4T
mark	12R
marked	4T
mask	8T
massive	2R
mechanical	1T
mechanization	2R
merchant	2R
merely	2R
metric	7T
microclimate	6R
mildew	15T
mildly	7R
minimal	14T
miscellaneous	6T
mode	3T
modification	5T
modular	5R
moisture	6R
mold	7R
monitor	14R
Monterey	13R
moor	1R
mortar	11R
multicolored	9R
multi-purpose	9T
nail	5R
negotiation	1R
nevertheless	5T
Newfoundland	8R
nonetheless	1T
non-linear	11T
nonwoven	7R
notch	9T
numerous	4T
objective	13T
observe	3R
obstacle	11T
occupy	11R
oceanographer	8R
odor	3R
off-hire	7T
omission	4T
on-hire	7T
operative	5R
optimum	4T
option	12R
organic	13T
outboard	6T
outbound	5T
outlast	14R
outlet	1T
overboard	8R
overlap	8T
overload	3R
oxy-acetylene	12R
Pacific	8R
pack	1T
package	3R
painstaking	1R
palletize	13T
parallel	3T
parameter	4T
paramount	9T
parlance	1T
passive	7R
patch	8T
patch	13T
patio	10R
payload	1T
penetrate	6R
percentage	6R
perforate	7R
permanent	9R
permissible	12T
personnel	4T
pertinent	6T
pin	9T
plane	6T
plank	2T
planking	2T
plasma	15R
platform	1T
plight	8R
plumbing	10R
plywood	3T
port	9R
portable	9R
portion	3T
pose	7R
possess	3R
possession	9T
post	3T
potable	2T
precaution	8T
precedence	7T
precisely	4T
precision-cut	12R
predict	2R
predominate	1R
prefabricate	14R
preferably	1R
prejudice	10R
prep	13R
prerequisite	4R
prescribe	3T
preservation	5R
prevail	4T
primarily	1T
prime	8T
principal	1T
priority	4T
problematic	3R
procedure	4T
proceed	8T
process	2R
profile	2T
project	3T
prompt	1R
prone	7R
property	15T
prototype	10R
protrude	5R
quantity	6R
race	13R
racking	9R
radiation	6R
ramp	9R
random	4T
rapid	4T
ratio	1T
rationalize	1R
rear	2T
reassure	14R
rebar	15R
recess	14T
recognize	4R
recommend	5T
recycle	9R
reefer	1T
refabrication	13R
reference	9T
reflect	13T
reform	2R
refrigerate	1T
refurbish	11R
regulation	2T
reinforce	2T
release	5T
remind	5R
remnant	14T
removable	1T
rent	11R
rental	11R
repairworthy	5T
replace	2R
representative	15T
reseller	15R
residence	10R
residue	9T

resort 14T
respective 1T
responsible 4T
restore 5T
restrict 3R
restriction 1T
retail 11R
retain 7T
retire 9R
retractable 9T
revolution 12R
revolutionize 8R
rig 10R
rigid 3T
rigor 5R
ring 2T
ripple 11R
rodent 14R
roller 13R
rub 13T
sailing 2R
sample 13R
sand 14T
saturation 6R
scale 1R
Scotland 8R
scrape 14T
scratch 7T
screw 5R
seal 5R
sealant 8T
seam 15R
seaworthy 5R
section 2T
section 8T
secure 1T
segregate 3R
sensitive 7R
severity 14T
shatter 10R
shed 9R
shelter 9R
shield 8T
shift 12R
shipment 12R
shipowner 1T
shipper 9R
shrink 2R
significantly 3R
sill 3T
site 13R
situate 7R
skeptical 1R
slide 13R
sling 2R
slippery 13T
sneaker 9R
soak 14T
solar 6R
solution 14R
solvent 8T
sound 6T
spacer 9T
spark 15T
specialist 2T
specialize 12R
specify 7T
sphere 4T
spill 14T
spillage 13T
spray-tight 5R
stack 3R
stain 13T
stairway 10R
stall 10R
stanchion 2T
stand 9R
standardization 1T
standardize 1R
standing 13T
standpoint 12R
startup 12R
static 4T
stick 13T
stiff 6T
storage 6R
storage 7R
story 10R
stow 4T
stowage 1T
strap 13T
stress 3R
stretch 8R
string 9T
stucco 15R
studio 9R
sturdy 15R
subfloor 15R
subjective 9T
subsequent 4T
substance 2T
substantial 14R
substitute 8T
subtract 11T
sufficient 4T
sunglasses 11R
surge 2T
survey 2R
susceptible 8T
suspect 12T
suspend 7R
switch 2R
tackle 15R
taint 13T
tank 1T
tanker 1R
tankless 10R
tap 14T
tape 9T
taper 9T
target 6R
tarpaulin 2T
tear 5T
temporary 2T
tenant 10R
tent 13R
term 1T
terminal 5R
thermal 1T
threshold 7R
thrilling 14R
timely 5T
tip 1T
tire 13T
toil 9R
tolerance 5R
toll 9R
topple 3R
torch 12R
toxic 15T
track 8R
tractor 1R
trade 2R
trailer 1R
transfer 3T
transferable 13T
transformation 13R
transit 2T
transverse 3T
trash 8R
tremendous 12R
triangular 9T
truck 1R
tunnel 3T
turbine 14R
turnaround 2R
unceremoniously 8R
undercoat 8T
undergo 13R
underlying 10T



Word	Unit
urban	10R
utility	11R
vacant	11R
vapor	6R
variable	6R
variant	2T
variation	6R
various	4R
vary	3T
vastly	4T
vehicle	4T
vendor	13R
ventilator	3T
verify	8T
versatility	10R
vertical	3T
vessel	2R
vicinity	3R
violently	15T
virtually	4T
vital	9T
volume	1T
vortex	8R
voyage	6R
warrant	15T
watertight	5T
wear	5T
weathertight	6T
web	11T
weld	6T
wharf	2R
widespread	10R
windy	14R
wipe	13T
withstand	3R
workshop	9R
wrap	13T
wreck	3R
yard	9R
zone	4R

词　组　表

Phrase	Unit
abrasive blasting	14T
abrasive disk	14T
acceleration force	4R
all at once	1R
allow for	2T
appeal to	11R
as a matter of course	9T
as to	4T
be adjacent to	3T
be associated with	2T
be attributable to	4T
be composed of	3T
be constructed of	14R
be exposed to	4T
be liable to sth.	7R
be meant to	15T
be parallel to	3T
be prone to sth.	7R
be representative of	15T
be responsible for	4T
be sensitive to	7R
be skeptical about sth.	1R
be subject to	2T
be susceptible to/of	8T
box container	1T
break ground	10R
building block	5R
bulk container	1T
by far	10T
by means of	15T
cam keeper	3T
cargo secure	1T
cargo stowage factor	1T
Cargo Transport Unit	4T
carrying car	1T
cast off	9R
catch on	12R
cater for	3R
center spacer	3T
certification requirement	5T
come under	1R
come up with	12R
compliance with	2T
comply with	1R
consign sth. to sth.	1T
consist of	2T
container without additional equipment	2T
corner fitting	3T
corner gusset	3T
corner post	3T
corner protection plate	3T
correspond to	1T
corrosion testing hammer	9T
cutting edge	13R
damage scale	9T
dew point	7R




redelivering agent	9T	substitute for	8T
refer to	3R	take account of	4T
reference line	9T	take into account	3R
refrigerated container	1T	take its toll	9R
remind …of…	5R	take precedence (over sth.)	7T
replace…with…	2R	tank container	1T
restore sth to …	5T	tape measure	9T
retail space	11R	taper gauge	9T
roof bow	2T	temperature-controlled container	1T
roof bow holder	2T	TEU	2R
roof panel	2T	thanks to	6R
rule of thumb	2T	thanks to	7R
run over	10T	thermal container	1T
San Gorgonio Pass	14R	top coat	8T
Sea Otter Classic	13R	transport operation	4T
set apart	13R	triangular flat bar	9T
sheet steel	1T	under way	2R
ship agent	2R	unloading hatch	1T
shipping company	1T	volume-to-payload ratio	1T
shipping stress	4T	water content	6R
short of	12R	Wayne State University	10R
shortly afterwards	13R	wear out	9R
show up	12R	wind farm	14R
side rail	2T	wire brush	14T
space out/measure back method	11T	with reference to	3T
speed up	2R	with respect to	11T
standard container	1T	wrecking ball	3R

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